Sidebands

The Newsletter of the EAST GREENBUSH AMATEUR RADIO ASSOCIATION

April 2022

www.egara.club

Field Day 2022 -- A Return to Normal

After being interrupted by Covid for the last two years, Field Day 2022 will be held once again at the East Greenbush Masonic Lodge Hall on June 25-26. Planning is now underway and the club expects to increase its activity to three stations this year, instead of the usual two. Dave Smith, WA2WAP, is proposing to add his digital station to the two regular HF SSB/CW setups provided by the club. This should help boost the club's Field Day score, as digital contacts are worth two points each.

Activities will begin on Friday evening, June 24th, with equipment being pulled from storage, checked and set up. Final preparations will take place Saturday morning, with Field Day's on-air activities starting at 2 pm and running for the next 24 hours. As in the past, the club will provide food, drinks and snacks for everyone who participates.

As Field Day approaches, club members will be asked to sign up for operating shifts, including set up on Friday and tear down on Sunday afternoon. To make the event more fun and efficient, club members will be urged to team up to share operating and logging. In addition, Field Day will also offer members with Tech licenses to operate on the HF bands when teamed with a member holding a General or Amateur Extra license.

The club will also reach out and invite local officials, youth groups and members of the media to stop by and participate in Field Day activities in an effort to attract new hams, expand awareness of EGARA and its benefits, as well as to gain additional Field Day points.

In This Issue

EGARA Election Update

Nominations Needed for Officer and Board Positions

April brings with it the annual election of the club's leadership posts. All members in good standing (dues paid for 2022) are eligible to run and are encouraged to do so. Offices to be filled include: President, Vice President, Secretary, Treasurer and one Board position.

Currently, there is no candidate for Secretary to fill the post being vacated by Steve VanSickle, WB2HPR.

Incumbents now serving as President, Vice President and Treasurer are expected to run for re-election.

Club members may self-nominate for any open position by emailing their name and the position for which they are running to W2RBJ@outlook.com.

Next Membership Meeting - 7 pm - Wednesday, April 13, 2022

FCC $35 Amateur Application Fee Starts April 19th

The new Amateur Radio license application fees will take effect on April 19, 2022. The Federal Communications Commission's authority to impose and collect fees was mandated by Congress.

The $35 application fee will apply to new licenses, license renewals, modified call signs, and vanity call sign applications. The fee will be per application.

Administrative updates, such as a change of name, mailing or email address, will be exempt from fees.

VECs and Volunteer Examiner (VE) teams will not have to collect the $35 fee at exam sessions. Once the FCC application fee takes effect, new and upgrade applicants will pay the $15 exam session fee to the ARRL VE team as usual, and pay the $35 application fee directly to the FCC by using the CORES FRN Registration system. ARRL says it also plans to pick up the $35 fee for new hams under the age of 18.

When the FCC receives the examination information from the VEC, it will email a link with payment instructions to each successful candidate who then will have 10 calendar days from the date of the email to pay. After the fee is paid and the FCC has processed an application, examinees will receive a second email from the FCC with a link to their official license. The link will be good for 30 days.

In addition, the FCC says that applications processed and dismissed will not be entitled to a refund. This includes vanity requests where the applicant does not receive the requested call sign. To avoid this, they should first ensure the call sign requested is available and eligible for their operator class and area -- and then request as many call signs as the form allows to maximize their chances of receiving a vanity call sign.

FEE SCHEDULE

(Effective April 19, 2022):

INDIVIDUALS:

$35 FEE: New, call sign change, renewal, and vanity call sign applications. All fees will be per application.

NO FEE: Administrative updates, such as a change of name, mailing or email address, or license cancellation.

AMATEUR RADIO CLUBS

$35 FEE: New, renewal, trustee change, and vanity call sign applications. All fees will be per application.

NO FEE: Administrative updates, such as a change of name, mailing or email address, or license cancellation.

Support EGARA with Your 2022 Dues

April is the deadline to renew your annual membership -- unless you took advantage of an EGARA multi-year discount or have already paid for this year. Remember too, it's easy to pay dues on-line, using the club's fast and secure PayPal account, or you may mail a check. Information on dues options and the PayPal link are at:

https://www.egara.club/pay-dues

Thanks to income from our Hamfest, dues remain the same for 2022.

W7Y Special Event QSL Cards Mailed

EGARA has begun sending out the custom designed QSL cards that it had printed for the W7Y Special Event Station it operated to observe the 100th anniversary of broadcast pioneer WGY. The first batch of 86 cards was mailed March 14th.

Club President Bryan Jackson, W2RBJ, and Treasurer Don Mayotte, KB2CDX, processed the requests that had been received from hams across the U.S. and Canada. In one case, a request came in from a DX fan who was not an Amateur but who had logged the W7Y station working a number of hams on the 40 meter band. Additional QSL requests continue to come in daily and each is being processed as soon as received.

Extra copies of the QSL card were also given to WGY for distribution to the station's staff and for its archives.

Cards will also be given to the Schenectady Museum Amateur Radio Association, which joined EGARA to operate the W7Y station on Saturday, February 19th -- the eve of the official 100th anniversary of WGY.

Club Treasurer Don Mayotte, KB2CDX, sends out one of the W7Y QSL cards

Final Chapter Nearing For "Famous 1540"

The former home of the once-mighty rock 'n roll legend WPTR has been put up for sale on Albany Street in Colonie. The station, which had changed its call letters to WDCD, went dark on October 16, 2017, after trying several different formats over the years. The station surrendered its license to the FCC on September 28, 2018.

The broadcast legend originally signed on August 10, 1948 as WPTR, with 10,000 watts of power. The call letters were requested to reflect the original licensee, Patroon Broadcasting Company, which was owned by Schine Chain Theatres.

The studios were first located in the Hotel Ten Eyck in Albany. In 1953, the station gained an ABC Radio affiliation and primarily programmed a mix of popular and country music along with news & sports. It was during this period that 1540 increased power to 50,000 watts full-time to combat nighttime interference from co-channel stations KXEL in Waterloo, Iowa and ZNS-1 in Nassau, Bahamas -- although the official explanation to the Federal Communications Commission was "poor ground conductivity" at the transmitter site.

By 1957, in an effort to become more competitive with the more established stations in the region, a new "Top 40" format was introduced to listeners. For much of its Rock 'n Roll heyday, WPTR was the number-one rated station in the Capital District.

Sale of the property will almost certainly mean removal of the former station's three 365 foot towers, which have been a visual landmark along Central Avenue in Colonie since they were erected in 1948.

The former studio and transmitter site of WPTR at 4243 Albany Street in Colonie is now up for sale

The History of Ham Radio: Onward, Downward

Chris Codella, W2PA, author, John Pelham, W1JA, editor, Phil Johnson, W2SQ, editor

(Editor's note: By special arrangement with the authors, Sidebands is pleased to present this multi-part series on the history of ham radio. Subsequent chapters will be published in future monthly editions of the newsletter)

Around 1:00 a.m. on 26 November 1923, Charles York had been handling routine message traffic at his station 7HG in Tacoma, Washington, when he heard a pure CW station calling him on 200 meters signing JUPU. They made contact easily at first. The JUPU operator, an American, gave him a message for his mother in Cambridge, Illinois, and said he was located in Tokyo. But the contact was lost before York could get the street address in Cambridge, find out exactly who the JUPU operator was, or whether the station was aboard a ship or on land. Most of this would remain a mystery except that the station itself was later found to be government owned and was also heard by at least one other amateur. The contact itself was never confirmed though no one questioned that it had occurred.

Charles York, 7HG

York made the QSO running 100 watts to a six-wire inverted-L antenna with a fifty-foot top section and a forty-foot lead in wire. An accomplished DXer, he had previously worked both 6CEU in Hawaii and 1AC in Nova Scotia. This, however, was the first two-way QSO across the Pacific Ocean—about 4,650 miles. And it was done entirely without preparation, pre-arranged schedule or fanfare, and, as he put it, "where the mere existence of stations capable of doing the job was not suspected."

Amateurs were rapidly coming to appreciate that there was something strange and unexpected about the shorter wavelengths. Clearly, it was time to press on downward, but their hands were somewhat tied by the lack of an allocation in this unused, unexplored territory. Operating there still required a special permit from the Department of Commerce.

Hams had been relegated to 200 meters or lower in 1912 because the short wavelengths were considered useless. Now, as amateurs were opening up this new frontier, they were being prevented from developing it. Getting an X license (as the special permits were called) to operate there was also becoming more difficult than in the old days. And yet, it was the amateurs who were making transatlantic contacts on 100 meters seem routine, and who were being heard on every continent. Who better than the amateurs could develop the shortwaves? The situation was frustrating.

Besides the vicinity of 100 meters, "Wouldn't it be fascinating to have an amateur band from 40 to 50 meters or even from 4 to 5 meters, where we'd have to develop totally new methods and brand new apparatus to make them work?" pondered ARRL Secretary Warner. He blamed the "reservation" below 150 meters squarely on commercial interests—the broadcasters on 100 meters in particular. Most believed that when new regulation eventually arrived amateurs should rightly be given access to some of the shortwaves.

Meanwhile, intercontinental experiments continued.

Charles Maclurcan

In early 1924 Charles D. Maclurcan's station 2CM near Sydney, Australia, was copied at 4AA in New Zealand, 1,500 miles away. Amazingly, 2CM was transmitting with only four milliwatts of power. Maclurcan had been conducting tests specifically to probe the boundaries of low power operation by gradually decreasing his transmitter power in steps, each indicated by sending single-letter codes. His experiments and successes in being heard over long distances with low power on shortwave made him one of the most well known Australian amateurs, inspiring others to follow.
2CM Low Power Station

Long intrigued by hunting for and hearing American stations coming through down under, Maclurcan decided to take his experiments to the US, quite literally.

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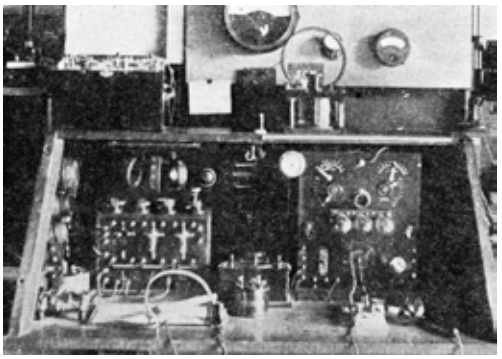
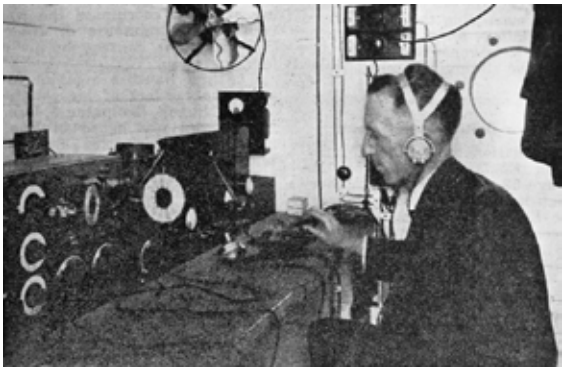
History of Ham Radio...

Later that spring, he recruited another Australian amateur prominent in low power shortwave DX, 16-year-old Jack Davis, 2DS, to help take his station to sea. They intended to experience communicating with home using low-power shortwaves at ever greater distance as they crossed the Pacific Ocean from Sydney to San Francisco. Back in Australia, F. Basil Cooke, Vice President of the Australian Radio Relay League, was appointed to organize participation in these tests including the operation at 2CM, Maclurcan's home station.



2CM Low Power Station

Signing 2CDM, a duplicate of the 2CM station was built and installed in a five-foot-square cabin lashed to the after deck of the R.M.S. Tahiti, the ship that would take them to the US and back again. On the way they planned to operate on 240, 200 and perhaps 160 meters from 10 March to 7 April between 2:00 and 4:30 a.m. Pacific Time. The two were anxious to see how far out they could still communicate with home, and at what point they would begin to work the US West Coast.



Maclurcan aboard
R.M.S. Tahiti operating 2CDM

Before heading north, the Tahiti sailed for five days east to Wellington, New Zealand, where Maclurcan and Davis met local hams with whom they had often corresponded. The Australians also had to hunt for a high-voltage generator to replace theirs, which had burned out after only three days in operation. They had bad luck with their five-watt transmitting tubes, too. Having planned to use three of them, their primary tubes all died shortly after leaving home and one of the two spares was found to be a "dud." That left them with only a single transmitting tube for the entire Pacific crossing.

Pressing on, the two hams maintained good contact with amateurs in Australia and New Zealand out to 1,800 miles. Soon they established contact with 6AKW on the California coast with whom they continued to converse for the rest of the trip. And on broadcast wavelengths, KGO in Oakland and KHJ in Los Angeles brought music on board the Tahiti.

Although two-way communication with home gradually became impossible, they continued to copy signals from 2CM in Sydney nearly the entire distance until, at 5,380 miles out and nearing the US West Coast, the QRM from American signals finally drowned it out.

Maclurcan was certain that if it were not for the QRM he'd have easily been able to copy 2CM all the way to San Francisco Bay.

A. H. Babcock, ARRL Director in Berkeley, hosted a hamfest at the Engineers' Club attended by other prominent Bay Area amateurs. Here they exchanged ideas about operating techniques and radio technology, and told one another about amateur radio in their respective countries. Mclurcan and Davis remarked that "useless calling" and not enough listening were the greatest hindrances to effective communication, echoing similar complaints in North America.

Later in 1924, a set of Pan-American tests was arranged, somewhat less formally than the other tests, by ARRL and Revista Telegráfica, a radio- and communications-oriented magazine based in Argentina. There was burgeoning interest in radio across the continent, providing a wide readership. South American amateurs often used shortwave phone transmissions from KDKA and WGY to fine-tune their receivers.

During the tests, South and North American stations would alternate transmitting before and after midnight Eastern Time, respectively, each night for eleven nights in late May. There was no appeal for absolute quiet as there had been in the transatlantic tests, and transmitting stations were instructed to make up their own eight- to ten-letter code words to send, changing them each night.

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EGARA March Meeting Minutes

- The March meeting of the EGARA membership began at 7:11 pm with a welcome by President Bryan Jackson, W2RBJ, and a round of introductions by those in attendance. Three new members were welcomed and Vice President Walt Synder, N2WJR, was recognized for passing his Amateur Extra test at the March 5th VE test session;

- Members were provided with an update on the club's Special Event Station, W7Y, which was operated on February 19-20 to commemorate WGY's 100th anniversary. The club designed and printed a special QSL card to mark the event and will send cards to verified contacts who request them.

- Members were reminded that the club's annual election of officers will be held at the April meeting and they were urged to consider running for one of the open positions. All members in good standing (dues paid for 2022) are eligible to run and may self-nominate to be placed on the ballot. To date, there is no announced candidate for Secretary to replace the retiring Steve VanSickle, WB2HPR;

- It was announced that the club plans to return to normal Field Day operations this year, after being disrupted by the Covid pandemic. Dave Smith, WA2WAP, offered to also set up a digital station during the event, allowing the club to operate three stations this year. (see story on page 1);

- Treasurer Don Mayotte, KB2CDX, has proposed establishing a monthly on-air round table using the club's new 220 Mhz repeater. He is reaching out to those members who are interested to set up a date and time;

- Members were reminded that the annual EGARA Hamfest will be held August 27th at the East Greenbush Town Park. The club has reserved the building and paid the rental fee in advance, as required by the town. The rental will once again include the Red Barn building and the Pavilion located in front of it. The club also received a discount because it is a non-profit 501c3 organization;

- Members were advised that their help will be needed bringing equipment back to the lodge from the temporary storage provided by member Peggy Donnelly, KD2LMU. Notification will be sent by email seeking their help;

- Members were also reminded to send in their classified ad information if they have equipment for sale or swap and wish to have it included in the club newsletter;

- There was no report from the club Secretary, who was unable to attend due to inclement weather;

- Treasurer Don Mayotte made a brief report on club finances and indicated that two major expenses were paid in March. The first was for rental of the club's Hamfest venue, and the second was to pay for the club's annual renewal of its insurance liability policy;

- Following the business portion of the meeting, Don Mayotte provided a presentation on identifying the various digital signals heard on the shortwave bands;

- The meeting was adjourned at 8:42 PM.

- Submitted by Bryan Jackson, W2RBJ - President, on behalf of Steve VanSickle, WB2HPR - Secretary

On the Beam
News & Notes

March VE Test Session Mints Six New Hams

EGARA's test session on March 5th saw five hams get their Technician tickets and one -- club member and Vice President Walt Synder, N2WJR -- upgrade from General to Extra.

Two of the two new Techs, Bonnie Sakara, KD2YXK and Dara Blanchette, KD2YXJ also were given VHF/UHF dual band HT radios to help get them on the air. The radios were graciously provided to the pair by club member Bob Isby, K2RHI. Bonnie and Dara also joined EGARA as new members.

Also earning Tech licenses at the March exam session were Jim Fogarty, KD2YXH and Tom Horn, KD2YXI, with Tom also joining EGARA after passing his test.

Brett Lewis, KD2YXL, was able to reactivate his status as a General Class operator after passing his Tech and producing a copy of his expired General license, which provided him with an automatic upgrade to General. Brett is returning to the hobby after an absence of several years.

Dara and Bonnie proudly display their CSCE exam passed certificates

"***I wanted to say, to you and the other volunteer examiners -- thank you again for making the exam available to us,***" Brett wrote to EGARA President Bryan Jackson in a follow up email. "***I was prepared to drive to Schenectady or elsewhere to take the test, but having it right here in East Greenbush, only a few miles from my home, was very nice. Thanks also for working through my unusual circumstance of requesting credit for Element 3***."

For Walt Synder, it was a dream come true when he passed his Amateur Extra exam. The upgrade also means Walt is now a full fledged VE test Examiner who can administer all classes of FCC Amateur exams.

Club VE's administering the March 5th exam included Russ Greenman, WB2LXC. Bill Leue, K2WML, Steve Van/Sickle, WB2HPR and Bryan Jackson, W2RBJ.

Left: Walt Synder, N2WJR, gets a thumbs up from members of the exam team after he passed his Amateur Extra test.

Antennas to be Topic of April Meeting

Club antenna guru Don Chittenden, N2USM, will do a presentation on Amateur Radio antennas at the EGARA Membership meeting on April 13th.

Demonstrations will include a variety of portable antennas that are easy to travel with and set up.

Don, who is active in the ***Parks on the Air*** program, will also discuss a variety of tips for those who are interested in working their stations in the field.

While the focus of Don's presentation will be on portable gear, he will also be available to answer general questions on antennas and coax feed lines.

History of Ham Radio...

As the test ran, another new but unrelated international record was set. Station CB8 in Buenos Aires worked 2AC at Gisborne, New Zealand, on 22 May without a prearranged schedule, completing the first two-way contact between the two continents. Carlos Braggio, the CB8 operator, had been participating in the Pan-American tests that night when, at 4:00 a.m., he heard 2AC calling him. They remained in QSO for over two hours. The 6,400-mile contact beat the previous record of 4,600 miles set by 6CEU in Hawaii and WNP, the MacMillan polar expedition, just before the previous year's transatlantic tests.

CB8 was the only station reported heard in North America as of June, and was also heard in Europe. Its first QSO in the test, the first between the two continents, was with 3BWJ in Collingswood, New Jersey. In all, nine US stations worked CB8, including John Reinartz at 1XAM who also succeeded in sending a message that was received by several amateurs in Argentina, Brazil, and Chile.

Station CB8, Buenos Aires

Dr. Albert Hoyt Taylor, Superintendent, Radio Division, U. S. Naval Research Laboratory, had been active in the ARRL since its beginning. Before the war he wrote several QST articles about QSS (signal fading) phenomena while a professor at the University of North Dakota, where he also operated stations 9YN and 8XN. Now in his position with the Navy, Taylor acknowledged the pioneering work of amateurs in exploring the shortwaves.

Furthermore, he wrote, "Most of us in this Laboratory have been amateurs in the past and, since that condition appears to be never fully eradicated by subsequent experience, we feel at heart that we are still amateurs in many respects."

Taylor's new laboratory at Bellevue, in Washington, D.C., commissioned the previous July, had only recently begun operating. Now "in the air" in spring 1924 with call sign NKF, the new lab's priority was shortwave testing in cooperation with amateurs, often working them day and night. In his article, Taylor called for expansion of that cooperative effort, offering frequency measuring ability and a free exchange of information and techniques.

The Navy's interest in shortwaves was not exactly new; battleships had been equipped with 150-meter capability since 1917. And they had experimented with waves as short as 5 meters, where they saw that "the production of standing waves and the influence of reflections, obstacles, etc. is very marked." The lab's work now concentrated on designing transmitters capable of very precise frequency control and stability and producing signals free of harmonic content, mainly to allow their use with other transmitters in close proximity, such as existed aboard ships. This put them at the pinnacle of the radio art in 1924.

NKF transmitted ACCW—CW produced with AC on the plates of the oscillator tubes, similar to how Leon Deloy had operated from French 8AB during the transatlantic tests and first QSOs. One advancement the Navy lab had made was rectifying the full wave of the AC supply within the master oscillator itself, permitting oscillations to continue "even during the period when the alternating current supply was passing through zero." For Taylor, producing a stable frequency "free of lilt and warble" was of the utmost importance—more important than increased power since a signal that wandered around became increasingly difficult for a receiving operator to copy, no matter how strong it might be. It was this lack of frequency control that had spawned the long CQs that everyone complained about, just as in the early spark days. "C.W. communication on short waves can only be considered a success when you can get your man with a short, brief call," wrote Taylor.

His lab had recently constructed a transmitter that could operate down at 80 meters with frequency control as steady as that of a long-wavelength signal. For a receiver, they favored a super-heterodyne design tailored specially for CW, with a very stable oscillator that was carefully isolated from all other circuits. Another source of instability, one that also caused harmonics, was overdriving the tubes (what he called "undue forcing") for getting higher power. A large number of amateurs operating near 1,500 kHz were being copied at NKF on their first harmonic at 3,000 kHz, often more strongly than on the fundamental frequency.

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History of Ham Radio...

Naval Research Laboratory, Washington, D.C., ca. 1924

Several forms of interference also hindered the use of short waves, emanating from faulty electric power lines and equipment, and from government and commercial high-power stations. Taylor acknowledged that the Navy arc transmitters were a particular problem. These were high-power devices used to produce CW signals using a continuous arc as a negative-resistance element to form a tuned oscillator circuit. They had been in use since before the war but became largely obsolete after the development of vacuum tubes. But since these installations were so expensive, it would be a while before they would be replaced.

Nevertheless the Navy was committed to "curing the evils of the high-power shore station" according to Taylor, and was working on "purifying" their transmissions to some degree until funds could be appropriated to replace them with tube transmitters. Aside from transmitted signals, poorly designed broadcast receivers were also to blame. Echoing the amateur's common complaint, he agreed that "the average broadcast listener usually expects to get Rolls-Royce performance out of a flivver set."

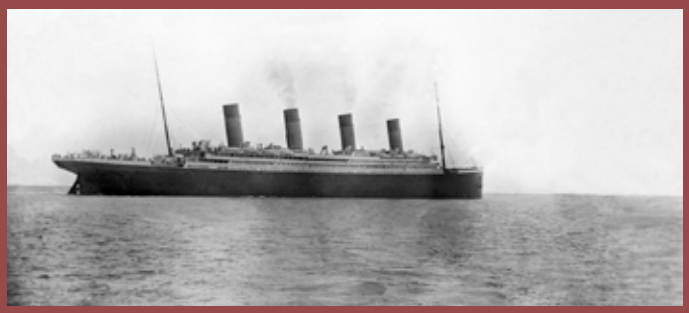
Taylor was most impressed by the strength of signals at 100 meters (3,000 kHz), where "'the intensity of signals … is so great that I am forced to conclude that these waves do not follow at all the ordinary laws of transmission." And there was also a strange variation in strength with distance, with some wavelengths carrying better by day and others by night. Relating an understanding just then gaining acceptance, he concluded "this would indicate that there is so complete a reflection of these waves at some upper and probably ionized layer of atmosphere, that they travel not as an ordinary radio wave, but more as a wave confined between two parallel planes."

While the Navy was already cooperating in tests with amateurs, Taylor worried that many hams could not tune down to the shortwaves, and that others, when hearing NKF call them, suspected they had done something wrong and would not answer. Historically, the amateurs' relationship with the Navy had not been an entirely smooth one. "I hasten to assure everyone that our purpose in these tests is solely to obtain information which no one can give us so well as the amateurs themselves," he wrote encouragingly, and asked hams to log their transmissions and contacts so both sides could learn about the nature of the new spectrum.

Clearly a visionary, Taylor appealed to his fellow hams, writing "I will be glad to do anything I can to stimulate the interest of amateurs in the reception of these very short waves. No one can tell now where the limit will be. There are so many frequencies available that an almost infinite number of possible channels of communication are to be had in the region of which I speak, so that there should be room enough for everybody, with certain moderate restrictions as to suitable bands wherein different interests could operate." His vision would become reality sooner than he might have imagined.

Did You Know...

Marconi Almost Went Down with the Titanic



Last Known Photo of the Titanic

April 15, 2022 marks the 110th anniversary of the loss of the Titanic. Wireless Pioneer Guglielmo Marconi had been offered free passage on its maiden voyage, along with his wife and two children. But because of pressing business in New York he decided to leave England early and instead booked his trip on the Lusitania, which left three days earlier.

Marconi's wife and children were still booked to go aboard the ill-fated Titanic, but canceled at the last minute when their infant son became ill.

The Strange Case of the Missing TV Channels

What Ever Happened to Channels 1 and 37?

While it may not be as relevant today with the advent of digital TV, it's still interesting to explore some of the history of broadcasting -- including a look at a couple of channels that went missing back during television's analog days.

The first among the missing was Channel 1. And what happened to it is an interesting story -- even involving hams a bit.

The FCC hearings that had started on June 15, 1936 resulted in the allocation of 19 television channels, each with a bandwidth of 6 MHz. The new allocations became effective October 13, 1938. Television now had allocations and channel numbers. The mysterious Channel 1 was assigned to the 44 to 50 MHz band and RCA"s experimental station in New York City quickly received a permit for one of those new allocations and selected Channel 1.

The television industry was generally pleased with the FCC allocation of 19 TV channels. They were hoping for a continuous band of frequencies to simplify tuner design, and were somewhat disappointed that 10 of the 19 channels were above 150 MHz. Those frequencies were virtually unused, and thought to be useful only for television relay networks. But, the seven lower VHF channels between 44 and 108 MHz were enough to begin plans for commercial television operation. However, these allocations would change over the next decade, as seen in the chart below.

These changes would be the result of Major Edwin H. Armstrong, who had introduced development of frequency modulation (FM), in 1935. Shortly after its introduction, five experimental frequencies between 42.6 and 43.4 MHz were allocated for FM. By 1940, the FCC had 150 applications for experimental FM stations on file that could not be processed because of lack of frequencies. As a result, the FCC assigned FM a continuous band of expanded frequencies from 42 to 50 MHz (again done to simplify tuner design). The new allocation included the 44 to 50 MHz band that had previously been assigned to Channel 1.

Channel	1938-1940	1940-1946	1946-1948	1948-2003
1	44-50	50-56	44-50	
2	50-56	60-66	54-60	54-60
3	66-72	66-72	60-66	60-66
4	78-84	78-84	66-72	66-72
5	84-90	84-90	76-82	76-82
6	96-102	96-102	82-88	82-88
7	102-108	102-108	174-180	174-180
8	156-162	162-168	180-186	180-186
9	162-168	180-186	186-192	186-192
10	180-186	186-192	192-198	192-198
11	186-192	204-210	198-204	198-204
12	204-210	210-216	204-210	204-210
13	210-216	230-236	210-216	210-216
14	234-240	236-242		
15	240-246	258-264		
16	258-264	264-270		
17	264-270	282-288		
18	282-288	288-294		
19	288-294			

But that is not the reason Channel 1 disappeared. The television channels were renumbered with Channel 1 now assigned to the 50-56 MHz band and the remaining channels were shifted around the spectrum, except for Channel 19, which was dropped.

When the revised 18-channel television allocations went into effect, the television industry was unhappy, to say the least. The FCC continued its refusal to set television standards -- and a television channel was lost to FM. Because of the changes in the allocations, many of the experimental television broadcasters also had to go off the air to complete extensive transmitter changes. For example, the RCA experimental transmitter W2XBS, operating on the old Channel 1 (44-50 MHz) was forced to switch to the new Channel 1 (50-56 MHz) because of the revisions.

Eventually things began to look up. The National Television System Committee (NTSC) was created and its plan for TV was finally adopted. However, there was one important difference from what the FCC originally envisioned. The audio carrier was to be FM. The FCC also pushed to have the resolution of 441 lines expanded to 525 lines to produce a better picture.

World War II halted television's growth, when the Defense Communications Board ordered construction of new radio and television stations to end. Television programming was reduced to just four hours per week for the broadcasters already in operation -- all devoted to war-related activities.

As the end of the war approached, the FCC was faced with a monumental task. The war effort had brought about an extraordinary leap in communications technology. Frequencies that had been thought to be useless were now in tremendous demand. The entire spectrum had to be re-examined, with new allocations made and old ones revised.

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The Strange Case of Missing TV Channels...

The FCC began holding hearings on September 28, 1944 and it was promptly overwhelmed. The 18-channel television allocations in effect since 1940 were attacked by one group as being wasteful of the valuable VHF spectrum, while yet another group urged an increase to 26 channels. Others demanded that the FCC immediately move all television allocations to UHF frequencies. But the television industry argued that television had waited long enough and should develop now, using the existing allocations.

After hearings that were held it became clear that no group was going to get everything it wanted. In the FCC's final decision, released on June 27, 1945, television's allocation was reduced to 13 channels and FM was moved from the 42-50 MHz slot to 88-106 MHz, later extended to 108 MHz. The television interests were very unhappy that they had been left with only 13 channels -- but it was the FM interests that suffered a major blow. All of the existing FM stations had to go off the air and switch to new frequencies. In addition, the 500,000 home FM receivers in use were now obsolete. In addition, the reduction to 13 television channels was accompanied by new and reorganized frequency allocations, as shown in the table on the preceding page. Again broadcasters had to go off the air to switch frequencies.

Channel 1 was still around, but it was moved back to the 44-50 MHz band that it had occupied from 1938 to 1940. In addition, there was a restriction on assigning Channel 1 -- it could only be used as a community channel and transmiiting power was limited to 1,000 watts. The other television channels were for metropolitan stations, with a maximum power of 50,000 watts permitted. All channels, except Channel 6, were shared with fixed and mobile services -- a fact that left television interests concerned about interference. The changes became effective March 1, 1946.

But problems began to appear. Propagation theories at that time predicted that television signals would not be received over the horizon -- but they were, quite readily. So, even with just 50 stations on the air, interference problems were beginning to appear. Meanwhile, the FCC had reduced the minimum distance between stations using the same channel to just 80 miles. An engineering study released by the FCC warned of interference problems if immediate action wasn't taken. That lead to an FCC report issued on may 5, 1949, that ruled television could no longer share its frequencies with fixed and mobile services, and that the 72 to 76 MHz band could be used for fixed radio services only.

But where could the mobile services be located if they could no longer share the television allocations, and could no longer be used for use the 72 to 76 MHz band? There was only one place to go -- the television industry would have to give up another television channel. But which channel would that be? The American Radio Relay League urged that Channel 2 be deleted so that the second harmonics of the 28-29.7 MHz amateur radio band would not interfere with television reception (and now you know why hams used to be blamed for messing up analog TV reception).

The television industry, although not pleased about losing yet another television channel, agreed that 12 clear channels were preferable to 12 shared channels. If they had to lose a channel, they preferred that it be Channel 1, because its absence would have the least impact on commercial television.

The FCC went along with the television industry's position, and on June 14, 1948, Channel 1 was deleted from the allocation plan and the frequencies it occupied were assigned to the land and mobile services. At the same time, the FCC decided not to renumber the channels -- and that is what happened to Channel 1.

Next -- The Strange Case of the Missing UHF Channel 37

In truth, Channel 37 never really disappeared. It remained on the TV dial, but only one television station was ever licensed to use the channel -- and eventually had to give it up.

Channel 37 was first allocated in 1952 when UHF broadcasting was opened up. Before that, only channels 2-13 were available. Because broadcasting was such an inexact science in those days, no city could have two channels on adjacent frequencies without interference. This meant that even though there were 12 available frequencies, the maximum number of channels was about seven, sometimes fewer. This wasn't going to be enough for the growing television industry.

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The Mystery of Missing Channel 37...

Originally, UHF channels spanned from 14 to 83. The government thought at that time that would be enough. And it was. But over time, that pool of frequencies was decreased. First, the FCC took away 70-83, then 51-69. In the most recent channel reallocation of April 2017, channels 38-51 were also removed.

Digital broadcasting is more precise, so those "adjacent channel" rules weren't needed. The addition of subchannels also meant that you could have more program sources on fewer frequencies. Plus, with cable and streaming, there wasn't the same demand for traditional broadcasting.

But one thing that most folks never realized is that channel 37 had been gone for a long time. How it disappeared, and why it disappeared, is an interesting story.

While television broadcasting was growing here on land, scientists were also using the same technologies to search the universe in new and unique ways. One of those was the growing field of radio astronomy. Radio astronomy uses radio waves to map the universe in the same way visible light has been used for hundreds of years. It can actually tell us a lot more about distant regions of space than we can see with the naked eye.

At the time radio astronomy was starting to take off, the technology limitations of the day kept most radio astronomy equipment to three sets of frequencies -- 410MHz, 610MHz, and 1,400MHz. -- all of which were all key to the early days of radio astronomy. Those three frequencies had two features that made them attractive. First, when combined, they allowed for a very full picture of the sky. Think about how red, green, and blue combine to give you a fuller picture of the visible world around you. That's similar to the way those frequencies are used.

Second, these frequencies made sense, given the manufacturing limitations of the day. Equipment using those frequencies was easier to build and maintain, and those frequencies were easier to detect through the atmosphere. But there was a problem -- television stations and 1950s technology. Unfortunately, Channel 37 was on 608 to 614 MHz.

There weren't very many TV broadcasters that really needed channel 37, but there were a few and the FCC really needed to keep TV broadcasts spaced far from each others. This was hard enough with VHF, but with UHF there were additional issues. Besides making sure adjacent frequencies were avoided, it was also necessary to avoid harmonics. Harmonic frequencies are those that are a perfect power of two different from the original. In other words, if you wanted to broadcast on 610MHz you also had to worry about someone broadcasting on 305MHz and 1220MHz.

Those stringent rules meant that for one station in Paterson, New Jersey, Channel 37 was pretty much the only choice. And while this station was far, far away from Illinois where there was a radio telescope using that frequency, astronomers worried their "view" of the sky would be messed up by the station that was operating in the Garden State.

The solution? Nobody would get channel 37 -- except scientists.

The struggle for channel 37 was surprisingly high-profile, especially considering it was about fairly obscure science. In the end, the FCC put in a 10-year moratorium on broadcasting on channel 37. It was then extended over and over until it was finally made permanent. In the meantime. TV makers did their best to keep you from realizing there wasn't a channel 37. You could still tune to it on any television, but there never was anything there. Eventually people forgot about the controversy and the world moved on.

Today, television broadcasting uses channels 2-36, which is more than enough. There are no adjacent channel rules anymore, because digital broadcasts don't need them. And, astronomers happily use channel 37 -- even learning to share it with some very low-powered medical equipment. And now you know.

WORLD AMATEUR RADIO DAY IS APRIL 18

What: 2022 World Amateur Radio Day
Who: All amateur radio operators worldwide
When: Monday, April 18, 2022 at 0000 UTC until Tuesday, April 19, 2022 at 0000 UTC
Where: A global event covering all regions of the International Amateur Radio Union (IARU)

World Amateur Radio Day is held on April 18 each year to celebrate Amateur Radio operators and the national associations that represent them. It was on this day in 1925 that the IARU was formed in Paris, with American Radio Relay League (ARRL) Co-Founder Hiram Percy Maxim serving as its first president.

Amateur radio experimenters were the first to discover that the shortwave spectrum could support long-distance radio signal propagation. In the rush to use these shorter wavelengths, amateur radio was "in grave danger of being pushed aside," by commercial interests.

Amateur Radio pioneers met in Paris in 1925 and created the IARU to promote the interests of amateur radio worldwide and to protect and enhance its spectrum privileges. Today, the IARU is a federation consisting of more than 160 national amateur radio organizations in as many countries and separate territories, including the ARRL in the United States.

On World Amateur Radio Day, all radio amateurs are invited to take to the airwaves to enjoy global friendship with other amateurs, and to show their skills and capabilities to the public. The event is not a contest but rather an opportunity to "talk" about the value of amateur radio to the public and fellow hams.

As an EGARA member, here are just a few ways to participate in, and promote, World Amateur Radio Day:

- Get a station on the air! Create your own personal "event" to talk about amateur radio to others, family and friends.
- Create and hold a special net or on-air event to raise the level of attention for the celebration, and to encourage other hams to talk about our hobby.
- Promote your personal World Amateur Radio Day activities on social media platforms like Twitter and Facebook by using the hashtag #WorldAmateurRadioDay.

Celebrate World Amateur Radio Day and all the ways Amateur Radio brings us together!

BBC Fires Up Shortwave to Deliver News to Ukraine

The BBC World Service (BBCWS) is turning to shortwave radio to deliver trustworthy news to Russians, now that the Kremlin is blocking Western media websites' reporting on Russia's invasion of Ukraine.

There is apparently a hunger for alternatives to Putin's propaganda among Russian-speakers. According to a BBC media release, "The audience for the BBC's Russian language news website more than tripled its year-to-date weekly average, with a record reach of 10.7 million people in the last week (compared to 3.1 million). In English, bbc.com visitors in Russia were up 252% to 423,000 last week." [The week cited by the BBC was Feb. 21–27, 2022; Russia troops entered Ukraine on Feb. 24.]

To help satisfy this hunger, the BBCWS announced it is broadcasting four hours of English news daily on two shortwave frequencies, both of which "can be received clearly in Kyiv and parts of Russia," said a BBC media release. The additional shortwave frequencies are on 15735 kHz operating from 1400 to 1600 UTC and on 5875 kHz from 2000 to 2200 UTC. Eastern European Standard Time, where Kyiv is located, is two hours ahead of UTC; for reference, U.S. Eastern Standard Time is five hours behind UTC. BBCWS had ended its Russian-language shortwave broadcasts in 2011 due to budget cuts.

In addition to BBCWS's new service to Russia and Ukraine, Ö1, the main news channel for Austrian public service broadcaster Österreichischer Rundfunk has expanded distribution of morning, midday, and evening news programs to shortwave. It can be heard on 6155 kHz at 0600 UTC, "Ö1 Mittagsjournal" on 13730 kHz at 1100 UTC and "Ö1 Abendjournal" on 5940 kHz at 1700 UTC. With this additional service, the Ö1 radio journals can be received easily by German-speaking listeners throughout Europe, including in Ukraine.

Still, at least the BBCWS is back on shortwave to Russia and Ukraine. Other trusted Western Cold War powerhouses such as Radio Canada International are gone from the shortwave airwaves, their antennas torn down and transmitters turned off.

"RCI was dismantled because of a lack of vision on how well and important an international service is," said Gilles Letourneau, co-host of the "International Radio Report" program on CKUT-FM in Montreal and owner of the OfficialSWLchannel on YouTube. "Although Voice of America is still on air, it has changed its focus to Africa and Asia. Radio Free Europe/Radio Liberty is still transmitting, but mostly using medium-wave frequencies rather than shortwave."

When asked if VOA intends to revive shortwave broadcasts to Ukraine and Russia, a VOA public affairs officer noted, "Our research indicates there are few shortwave sets in use in that part of the world, so it's not in our current plan to add shortwave broadcasts. However, we have begun a satellite TV station to provide additional content for eastern Europe and are exploring other methods of transmission."

It remains unclear how effective the new BBCWS shortwave broadcasts will actually be, given the decline of shortwave radio ownership/listening in the Internet Age. But Russians who still have shortwave receivers should be able to tune in. "I noted that the new frequencies for BBCWS are making it quite well here in North America," said Letourneau. "They should be quite good and easy to receive on small shortwave portable radios in Ukraine and Russia. "It is sad that BBCWS abandoned its Russian language service," he added. "That would definitely be useful right now, especially as Russia dismantled all of its shortwave jamming transmitters in the 1990s."

Russia may have diminished its ability to block shortwave broadcasts, but on Mar. 4 Roskomnadzor, the Russian government's media supervision agency, announced it had blocked the websites of BBC, VOA, Radio Free Europe/Radio Liberty, Deutsche Welle and other foreign media outlets, according to Reuters.

In response, the BBC has promoted the use of VPNs, apps such as Telegram and Viber, and the privacy-focused Tor platform as ways to circumvent Roskomnadzor's filters.

CALENDAR

April 13, 2022 - 7 pm - Regular monthly club meeting. Masonic Lodge, 710 Columbia Turnpike, East Greenbush, NY.

June 25-26 - Field Day 2022. Masonic Lodge, 710 Columbia Turnpike, East Greenbush, NY.

August 27, 2022 - Hamfest 2020, East Greenbush Town Park

Pro Tip: Look for the Weak Link

Almost every station has a weak link... maybe even two or more!

Always be on the lookout for a probable point of failure or loss of quality. Coax, grounding points and antennas exposed to the weather are always prime spots to check -- especially after Winter weather and severe storms.

On the airwaves, you'll encounter stations with a multi-bucks radio but a cheap, garage-sale microphone that results in muffled or distorted audio. Cutting corners usually compromises performance. It really is true what they say: "You get what you pay for!"

If you're really going to enjoy Amateur Radio, use quality gear, and keep heavily used equipment well maintained.

Looking For...

- Interested in old WW1 or WW2 US Army Signal Corps straight keys and transceiver/transmitter receiver that was used to operate CW by the US Signal Corps from WW2 era;
- Interested in HF linear amplifier from any era such as Heathkit SB200;
- Also looking for Drake 4CW.

Contact: Justin, KG2RG at: kg2rg@hotmail.com

For Sale...

- **Heathkit DX 35** with VFO and PTT, $150
- **Heathkit DX 60** with VFO and PTT, $150
- **Kenwood 520** Transceiver $225.00

Contact Tom at kc2fcp@nycap.rr.com

- **VIBROPLEX "Bug" semi-automatic key.** Original "PRESENTATION" Model with Gold Plated baseplate escutcheon. Beautiful heavily chromed upper parts, bright red finger pieces, jeweled bearings. Lists for $350 but you can own this beauty for only $250 plus postage. In absolutely beautiful condition, this dazzling example of Vibroplex engineering will be supplied in a unique hard-shell protective carrying case.

Contact Steve at: (518) 326-0902 or stevewb2hpr@gmail.com

- **FT 70D** w/ charger, battery and battery eliminator, asking $70.00
- **Kenwood ext speaker.** model SP 950, asking $25.00
- **Adjustable Microphone Boom**, make offer.

Contact Walt, N2WJR at: n2wjr07@gmail.com

Got Gear to Sell, Want to Buy or Swap?
Don't forget you can run a classified ad in Sidebands completely FREE!
Send a brief description and your asking price to: W2RBJ@outlook.com

The East Greenbush Amateur Radio Association

Organized in 1998, by Bert Bruins, N2FPJ, (SK) and Chris Linck, N2NEH, the East Greenbush Amateur Radio Association, an ARRL affiliate, is committed to providing emergency services, educational programs, and operating resources to amateur radio operators and residents of the Capital Region of New York State. The club station is W2EGB. The club also has several VHF and UHF repeaters open to club members and the public.