Volume 42, Number 2 Fall/Winter 2023

Journal of the

CALIFORNIA HISTORICAL RADIO SOCIETY

Auctioneers Greg Jarrett & Rosie Allen

Royal Society Jazz Orchestra

Radio Day Live 2023

Radio Play "A Date With Baby"

FOR THE RESTORATION AND PRESERVATION OF EARLY RADIO

FROM THE BIRTHPLACE OF BROADCASTING

California Historical Radio Society

HOME OF THE BAY AREA RADIO MUSEUM & HALL OF FAME

The California Historical Radio Society (CHRS) is a non-profit educational corporation chartered in the State of California. Formed in 1974, CHRS promotes the restoration and preservation of early radio and broadcasting. Our goal is to enable the exchange of information on the history of radio, particularly in the West, with emphasis on collecting, preserving, and displaying early equipment, literature, and programs. Yearly membership is $40 ($50 non USA).

CHRS Museum in Alameda

CHRS has been fortunate, through the generosity of its donors, to purchase a home for the CHRS museum and education center. It is located at 2152 Central Avenue. The building was built in 1900 as a telephone exchange.

CHRS volunteers are actively restoring the building to make it optimal for use. Our goal is to create an environment to share our knowledge and love of radio and enable us to create an appreciation and understanding for a new generation of antique radio collectors and historians.

Please come visit us any Saturday 9am to 3pm. Visitors and groups welcome at other times by appointment; Contact Steve Kushman.

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Contact us:

CHRS, PO Box 31659, San Francisco, CA 94131
or info@californiahistoricalradio.com

Visit us at: www.CaliforniaHistoricalRadio.com

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Dave Billeci	– Video Production
Dennis Monticelli	– Amateur Radio Operations
David Vasquez	– Electrical Transcription Project
Lunch crew:	Keith Scott, Betty Cosmos, Judy Mears

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FEATURE ARTICLES

From the Editor

I wish to thank all the authors for their articles, support, and scholarly contributions. Robert Rydzewski and Walter Hayden present some early history of the CHRS Radio Central building. John Okolowicz tells an interesting story of the company that manufactured the Melody Ship Speaker. John Staples presents the considerations and decisions in establishing the NTSC television broadcast format. And highlights of recent events including the introduction of the Bay Area Radio Hall of Fame Class of 2023; a brief report on the Vintage Television Enthusiasts Meet; and a tour of Sutro Tower. Steve Kushman and Mike Adams provide updates. Eddie Steeves gives us an update of the Central Valley Chapter.

I am always in need of quality content related to broadcast radio, ham radio, and television. If you have something to contribute, I urge you to let me know. I am especially interested in technical content. It can be of two types, a narrow topic in depth or a more broad topic with less depth. Enjoy . . .

Richard Watts, jrchrs@comcast.net

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From The President

by Steve Kushman

Life is all about change. Sometimes change is hard to take and sometimes change is very welcome. After 49 years, CHRS has hired our first employee. She is Executive Director Rachel Lee. She is a mother of 3, lives in Alameda and possesses the qualities and skills that will help carry and lead CHRS into the future. Please read Chairman Mike Adams' article for more about Rachel. This is a big change for us. I was skeptical when Board discussions began on this topic a couple of years ago, but have since realized the importance of an E.D. We are so pleased to have Rachel on board and excited about what she brings to insure our successful future.

New E.D. Rachel Lee with Philip Monego and Dennis Monticelli.

And another big change: 27 years ago, Mike Adams became Chairman of the CHRS Board Of Directors. Mike has done a fantastic job of managing our Board, our meetings, keeping up with our website and creating text and art displays for KRE and Radio Central. We can't say enough about Mike and his devotion for the preservation of radio history. Mike tells the stories of radio that will live forever in his articles and books he has written.

We were kind of caught off guard when, recently, Mike announced his retirement from the Chairmanship. We all know when it's time to move on and Mike feels the time is right for him. Because CHRS has a self-perpetuating Board, Mike was able to nominate Director Philip Monego to become his successor. Philip was unanimously approved by the Board. We congratulate Philip and wish him well in his new position with the Board, and look forward to his leadership and unique entrepreneurial experience and perspective.

Retiring Chairman Mike Adams with new Chairman Philip Monego.

Thank you, Mike and thank you Philip for your dedication and passion for CHRS. When we reconfigured the CHRS Board in 1996 and I became president, I knew the right man for the Chairmanship, and it was Mike Adams ...And was I right. Thank you, Chairman Mike!

Lots of changes for CHRS lately, and all for the betterment of our favorite vintage radio and communications society. Our future is very bright.

Please notice our journal covers are full of Radio Day pictures. This past July was our second year of holding Radio Day By The Bay - LIVE! In Alameda, in the parking lot. Again, it worked out very well. We had 325 attendees, and all had a great time. Lots of smiles throughout the day. We think that from now on we will continue to hold the event at Radio Central and in the parking lot next door. Having one venue is more convenient and gives lots of opportunity for socializing. Next year we will make a few needed improvements to make the day even better. Thanks to all of our dedicated volunteers, staff and performers who made Radio Day a terrific experience.

We hope to start on our façade restoration project very soon. Our goal is to restore the façade back to what it was. See the article from Bob Rydzewski and Walter Hayden about the building's 100+ year history. We can use your help. Please go to our website to donate toward the project or adopt a personalized brick in the walkway in front of Radio Central. I'm always available for your questions or comments. Keep Smiling, Steve (415) 203-2747 Steve@chrsradio.org ◊

From The Chairman

by Mike Adams

Organization comes to CHRS. You probably wondered how CHRS, the Californian non-profit 501(c)(3), manages all this laid upon us, plentiful radios, volunteers, hard working historians and writers. To step up to our future, we need to bring fresh perspective and organization. Meet Rachael Lee, our new Executive Director, a position essential to successful museum and discovery centers. Since we began CHRS 50 years ago, we have been operating informally, at times by the seat of our pants, resulting in many missed opportunities in fund raising and problem solving. Rachael has extensive experience with non-profit and fund management, volunteer recruiting, and community involvement. Rachel will be working closely with the Board and volunteers to make a stable growing financial base and expand our presence with the community. Her challenge is to build on CHRS's strengths, preserve the best of our membership comradery and culture while bringing a business perspective and practices to build and sustain our future. Thank you Rachael, we need you.

I need to dedicate this to CHRS President Steve. Through his leadership, CHRS has come a very long way. For at least the last twenty years he has been the energetic core that has motivated volunteers and donors to reach deep and make this happen. We set a foundation for our future when we restored the KRE building and began to become a center for radio enthusiasts and museum. Circumstances required we move on, and Steve was at the forefront bringing enthusiasm to the purchase of the 1900 Pacific Telephone Exchange and refashion into Radio Central. Then through his vision and project leadership, the building restoration is nearly complete. And through his continued energy, dedication, and vision, CHRS will continue to thrive and grow into the future. Thanks Again to Steve.

Together we have done so much, by so many, through so much commitment and dedication:

We have a complete library organized under the leadership of archivist Bart Lee and help from Bob Rydzewski, Hil Hampton, and Dave Harris. Bart with help from Steve Garaventa, John Staples, and Raj is also configuring our latest space, the Jon Winchell Hall of Communications with military, marine, and commercial communication gear. Also included is a working display of Software Defined Radio.

We have our amateur radio station W6CF under the watchful eye of Denny Monticelli and John Staples.

We have a center dedicated to Bay Area broadcasting and a functioning radio studio (sans transmitter) configured by John Stuart and John Staples. The studio enables digital transcription of vintage recordings being done by Dave Vasquez and our intern Giuliana,

We have a center for vintage Television led by John Staples and Gilles Vrignaud. On display are milestone sets from 1928 into the 1980s, all working and showing vintage broadcasts from the control center created by Gilles.

We now have a catalogue of our artifacts categorized and photographed by Walt Hayden and Cynthia Reinholz.

We have a fully functional radio repair shop for our collection led by Scott Robinson and dedicated techies including John Staples, Seth Arp, Jim Fink, Raj, Dave Billeci, Joe Araujo, Miles Steuding, Kyle Sund, and so many others.

We have a substantial tube inventory organized by Gilles Vrignaud, Kent Leech, and Heidi Gerster.

We have inviting grounds that are gardened and tended to by Paul & Edith Bourbin, David Dea, Keith Scott.

We have a Journal edited by Richard Watts with articles by many knowledgeable and talented contributors.

We have a great community of active volunteers that are pulled together by meals and goodies from Keith Scott, Betty Cosmos, and Judy Mears.

And we have so more to offer through the accomplishments of many others not mentioned but very much appreciated.

My time as your Chairman of the Board has come to an end. Due to declining health and mobility, I don't feel I can provide the leadership that is needed in this time of transition. I recommended and the Board approved that Philip Monego be the next Chairman. Philip is highly qualified to take CHRS forward as he has extensive senior level management and venture capital experience with technical organizations. I have very much enjoyed my tenure as Chairman and doing my part to support CHRS becoming an exceptional center for radio and discovery. I plan to remain engaged with CHRS and contribute going forward. Together we have accomplished so much. Thank you for all you do. ◊

CHRS Central Valley Chapter News

by Eddie Steeves

The Central Valley Chapter of CHRS has had a busy year. As Spring rolled around we decided to do some annual spring cleaning in our clubhouse. We did tree trimming and removal, and organizing the clubhouse. To improve our storage capability, the club decided to acquire a 20-foot storage container and located it onsite next to the clubhouse. We then moved many items that were stored in a member's barn into the container. Thank you Archie Durham for getting this done.

We kicked off the Summer with our annual clubhouse BBQ which was amazing, from all of the delicious food that the members brought, to the laughs, storytelling and wonderful weather it could not have been better.

We as a club continue on our mission to keep the restoration and preservation of antique radios and equipment alive and well. For more on all our activities, visit CVC at www.cvantiqueradio.com .

Images of the CVC Summer BBQ.

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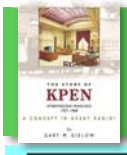
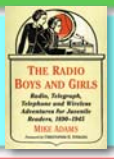
CHRS Publications



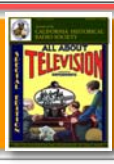
The Story of KPEN: A Concept in Great Radio! Gary Gielow has written a book chronicling the tales of two young men from Stanford, he and James Gabbert, who brought Stereo and new ideas to the FM radio band in the late 1950s and 1960s. This book is the definitive history of KPEN 101.3 FM, the 2015 BARHOF Legendary Station. 100% of the proceeds benefit CHRS. Available in the Museum Store or on the website.

The Radio Boys And Girls—Radio, Telegraph, Telephone and Wireless Adventures for Juvenile Readers 1890-1945 covers more than 50 volumes of wireless and radio themed fiction, offering a unique perspective on the world presented to young readers of the day. The values, attitudes, culture and technology of a century ago are discussed. Available at Amazon.com



Behind the Front Panel: The Design and Development of 1920's Radio by David Rutland has been remastered by Richard Watts for CHRS. With emphasis on radio technology, Rutland describes the development of 1920s tubes and radio circuitry designs by De Forest, Marconi, and other inventors and manufacturers. A classic! Buy at Amazon.com

CHRS Journal Special Edition — Television a compilation of original articles on television, including articles by Malcolm Baird on his famous father, British television pioneer-inventor, John Logie Baird, Don Godfrey's historical bios on CF Jenkins and Philo Farnsworth, plus restoration and technical articles from CHRS members. Available at Amazon.com



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Before It Was Radio Central

By Robert Rydzewski and Walter Hayden

The site of today's CHRS Museum in Alameda was a nexus of electronics and telecommunications even before Marconi sent his first transatlantic "S". Here we relate the story of that pre-Radio Central history.

An Electric Beginning

Even before the brick building at 2152 Central Avenue in Alameda that we call "Radio Central" was built, an electrical business could be found at that address (Figure 1). A full century-and-a-quarter ago, a notice in the *Alameda Daily Argus* advertised an "electrical repairing works" at that address capable of doing "modeling, house wiring, and bell hanging." The "bell hanging" probably referred to electric doorbell installation. It's less clear what "modeling" meant, but it likely didn't involve fashions and photo shoots.

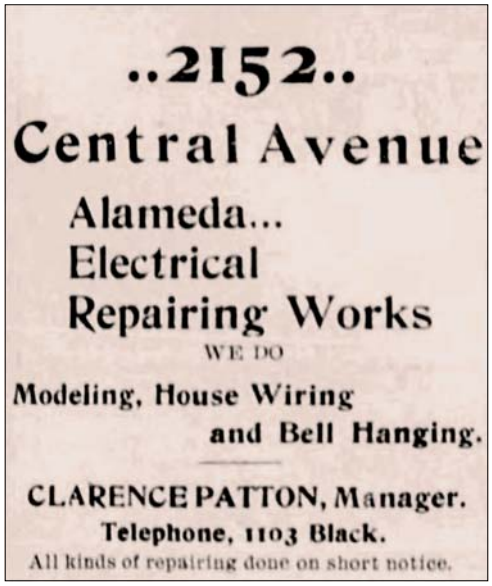

Fig. 1: Advertisement in the *Alameda Daily Argus*, October 8, 1898.

Sunrise for Sunset

The Sunset Telephone and Telegraph Company had been formed in the 1880s to provide telephone services to West Coast areas outside of San Francisco, and it was managed by Pacific Bell Telephone.[1] The company had been granted the telephone franchise for the city of Alameda in 1888. In the late 1890s it had been handling switchboard operations for subscribers numbering in the hundreds from various temporary locations around Park Street and Santa Clara Avenue.[2] In the spring of 1899 the company moved its facilities into an existing house it had recently purchased at 2152 Central Avenue.[3,4] Underground cables were laid as far as Walnut and Willow streets and from there the lines were run on telephone poles. The cables "are laid in pipes made of a composition of paper and bitumen, which is, of course, not corrodible or subject to electrolysis."[5] The cables themselves consisted of bundles of 200 fine wires, half white and half red, encased in lead, with a diameter of about 2 inches.[6] The cables were rolled out from big spools one block at a time, each weighing about 3000 lbs., and then wires were manually spliced onto those at the beginning of the next cable section. Conduits could accommodate five such cables, but only one was initially needed. The move from above- to below-ground lines which would later be expanded in both directions was appreciated by the locals: "No property owner feels like setting out trees in front of his premises and caring for them for years, to have a lineman come along with an ax and lop off the top or main limbs."[7]

The exchange at the original house was temporary. In its place a new, two-story building "of terra cotta or marble in the style of the telephone buildings elsewhere" was to be erected with the existing cottage moved to the back of the lot. At the temporary location, the switchboard had six sections employing six operators "during the busier hours."[8] The earliest days of telephone service had shown that young men were unsuitable for the position of switchboard operators: subscribers were sometimes greeted by a gruff "Whaddya want?" Only female telephone operators were subsequently employed. According to one manager, "they [women] are steadier, do not drink beer and are always on hand."[9] At the Alameda exchange the operators' lunch (alcohol-free) was prepared by a matron in another room and provided for free by the company.[10]

By late December 1900 the temporary digs had been moved back and the new building which later became the front half of Radio Central was completed. It was a 30 x 65-foot, two-story building with a Mission Revival front facade, which CHRS is currently in the process of restoring (Figure 2). The main floor featured a high (16 foot) ceiling, and the

switchboards were initially operated by fifteen women operators from 8 AM to 5 PM, ten from 5 PM to 10 PM, and one overnight (Figure 3).[11] The fact that only one overnight operator was needed "shows, for one thing, that Alameda is a peaceful and orderly town, at least not given to talking at night."[12]

The new exchange served about 1000 subscribers initially but had been built to have a capacity of 10,000, and the cost of the building was estimated to be about $10,000 (about $363,000 today). This price, considered high, was thought of as an investment in the future. Besides the switchboard room, the main floor also housed a Superintendent's office and a reception room "for patrons who may desire to use the long-distance lines."

Fig. 2: The Sunset Telephone Exchange at 2152 Central Avenue in Alameda, showing original facade. A project is underway to restore facade to its original ornate appearance.

How Long is "Long?"

It would be more than a decade before Lee DeForest's triode was used as an amplifier to make true long-distance telephony possible. The first transcontinental phone call wouldn't happen until 1914. But before that, shorter "long distance" calls could be made via mechanical repeaters, the equivalent of telegraph relays. Distance, however, was limited and audio fidelity was very poor. Remember those old movies where people would shout into their antique phones? Maybe the fact that a bust of DeForest, who called himself the "Father of Radio" now graces Radio Central a building once associated with telephone and currently just down the street from one still owned by his old nemesis AT&T, accounts for his wry smile (Figure 4).

Fig. 3: Interior of the Sunset Telephone Exchange, sometime in the 1930s.

Fig. 4: Bust of Lee DeFortest, "Father of Radio," whose invention of the triode amplifier enabled true long-distance telephony.

Major improvements to the Alameda exchange were made in 1907.[13] This was partly due to the thousands of San Franciscans fleeing the 1906 earthquake who decided to stay in Alameda, swelling the population and the number of subscribers.[14] Overhead telephone wires along Park Street were moved underground. The switchboard system was expanded and improved so that operators could handle calls from adjacent switchboards when phone traffic got heavy. But the biggest change had to do with the power source: batteries. Up until then each telephone was powered by its own set of dry cells (2 x 1.5V) which were changed by the telephone company when necessary, a task that

became more burdensome with more subscribers. In the 1907 upgrade, power was switched over to a central common battery system. A bank of rechargeable batteries (probably 48 V) in the basement powered the whole system, recharged either through the power lines or, if these failed, a nearby generator. The 1907 improvements cost far more ($200,000; the equivalent of $6.5 million today) than the original cost of the building.

Squabbles and Beefs

Although Sunset Telephone essentially had been granted a monopoly on local phone service, its relations with the city of Alameda weren't always harmonious. One early bone of contention was a section of the agreement stating that "all messages relating to the public business of the city of Alameda shall be transmitted over the wires in said city free of charge by said company."[15] Sunset Telephone interpreted that to mean that there would be no charge for calls per se, but the necessary rental fees for telephones would still apply. Alameda disagreed and interpreted "public business" very broadly to include police, fire, board of education, etc. The legal argument between Sunset Telephone and the city "hung fire" for years, even after an agreement was supposedly reached.[16] At one point the company even tried—but failed—to remove the telephone from the City Clerk's office, an action that the *Alameda Daily Argus* described as "arrogant."[17]

And not everyone was happy with the service provided:

> "Here is an actual incident... A gentleman wanted a number at Marysville or some other up-country town. He gave the number and waited. Then he waited some time. Time was precious but still he waited. After sixty minutes had passed he again called up 'Central' to know politely but firmly if she had the number yet. 'What county is that town in you wanted?' she then asked in accents sweet. Is it any wonder the man swore? She was a new girl, being broken in in Alameda by the considerate telephone company." [18]

If the newspaper articles can be believed, Sunset's Alameda office was used as a training ground for new operators who, once experienced, would be sent to other exchanges. *The Daily Encinal* called for competition:

> "Under present conditions Alamedans can take what they can get, pay their good money and be thankful. Are the City Trustees to allow such a disgrace to continue or will they give an independent company a show to demonstrate their superiority, and an opportunity, if it may be, to cut down exorbitant rates?" [19]

A near-monopolistic telecom with high prices and poor service? Hard to imagine today.

Middle Age

By 1926 there were more than 7,000 telephone subscribers in Alameda, and many more would be coming.[20] So in 1924-5 a new section was added to the rear of the building that nearly doubled its size (Figure 5). Built by Monson Brothers, it cost $22,000 (about $380,000 today). With the exception of the front facade and the side

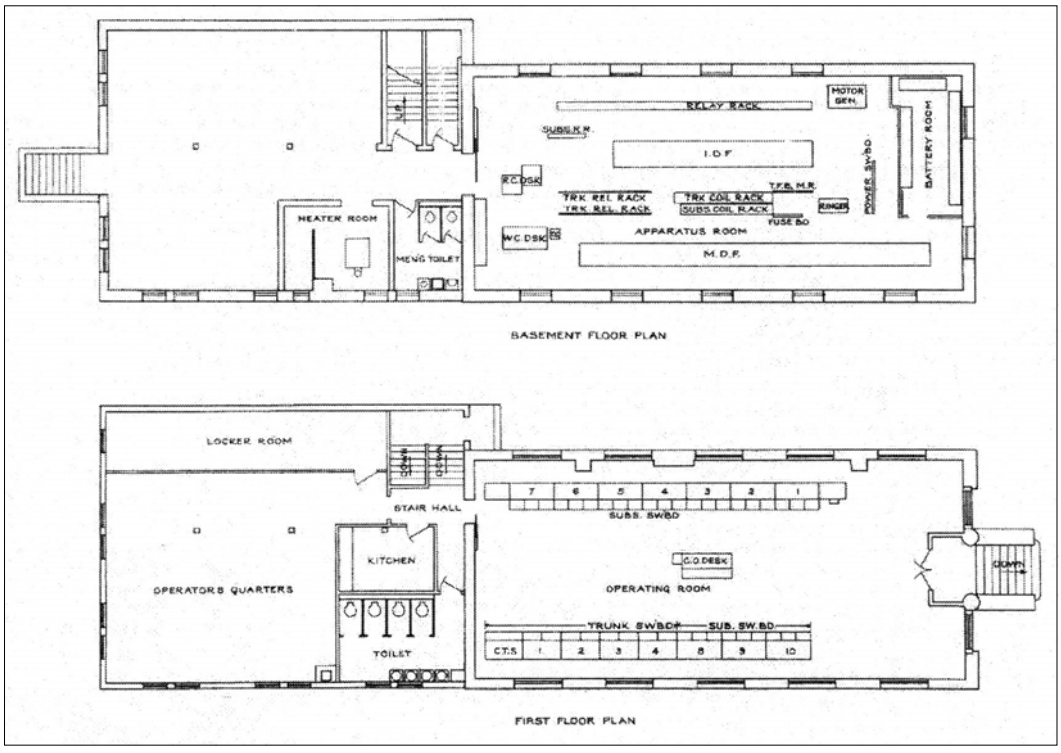

Figure 5. Blueprint of the building at 2152 Central Avenue in Alameda after the 1924-5 addition.

entrance still to come, at that point the building's footprint was pretty much the one we're familiar with today. Eventually though, even that expanded facility wouldn't be big enough to handle the necessary telephone equipment, and a bigger home for a more modern system was needed.

Fig. 6: Part of the building down the street at 2100 Central Avenue, which replaced the switchboard in the old building around 1940. It remains an AT&T facility today.

So, in 1939 Pacific Bell (now AT&T) began constructing new facilities just down the street, at 2100 Central Avenue. By 1980, these would stretch across nine adjacent 50-foot lots, taking up most of the block.[21] The new building housed an automatic telephone exchange, and it remains an AT&T facility today (Figure 6). Direct dialing as we know it became possible with the move, and there were no more switchboard operators asking for numbers and making connections via jacks and plugs. After four decades of service, the old exchange at 2152 Central was phased out, although Pacific Bell continued to own the building for some years thereafter.

Repurposing

By late 1946, the building we know as Radio Central had been sold to the Church of the Nazarene, which held worship services there.[22] The congregation made some custom modifications, both interior and exterior. In 1956 a raised altar area in the front of what is now the Great Hall was constructed. In 1964 a new facade was added along with an entrance foyer.[23] Perhaps the original facade was considered too dated and a more "modern" one was wanted. A 1979 photo shows the new facade completely covered with ivy, which looks a bit strange to our eyes, though, as they say, beauty is in the eye of the beholder. Today we look forward to the re-emergence of the original facade and hope you will contribute to this major effort.

After almost three decades of ownership, in 1974 the church sold the building to Garner Pre-School, Inc. (Figure 7) and the building was remodeled for that purpose. Those of us who saw the interior soon after CHRS bought it will recall the tot-sized sinks, toilets, and desks.

Fig. 7: Ad for the Garner Pre-School, *Oakland Tribune*, October 13, 1976

About Next Door

The history of the Radio Central building is intertwined with that of the lot next door, which is currently a parking lot. If the 2152 Central building is all about communication, 2150 Central has always been about transportation. Records are scarce, but it's believed that back around 1900 a livery stable was at the latter address.[24] A 1906 newspaper article tells us that this was the "Alameda Garage" and that two 500-gallon gas tanks had recently been installed under the sidewalk.[25] By 1932 this was a DeSoto dealership and featured a repair shop, paint shop, and car wash.[26] According to the owner, Lee Cavanaugh, who started working there in 1916, the 1930-ish showroom proudly displayed two cars, a DeSoto and a

Plymouth. In 1948 the dealership moved to Park Street. The garage on Central, a one-story wooden building, remained in operation, eventually as the "Webster Service Garage."

On the afternoon of September 9, 1982, a fire broke out in the garage. "It went up fast and engulfed the whole building almost immediately," according to the owner.[27] The flames spread quickly, causing the gas tanks to explode. Worse, the building was so close to the adjacent one that the fire reached the preschool, which had 70 children inside. Anyone who's had children will understand the agony of their parents as they waited outside, praying that their boys or girls would make it out in the evacuation. Fortunately, they all did and none were injured. All Alameda fire trucks as well as some from the Alameda Naval Air Station responded to the blaze, the concern being that burning embers could ignite nearby houses which had cedar shake roofs. Aside from the building at 2150 Central itself, which was gutted, the casualties included 14 new Plymouths, a vintage 1938 Buick, and a couple of other cars.

Soon after the fire the charred shell of the Webster Street Garage was demolished, and the site was converted to the church parking lot that we at CHRS can conveniently park at today. One possible reason that no building was erected there is that leakage from the gas tanks and service facilities over many decades might have necessitated a pricey environmental cleanup before any building could be erected at the site. But that's just speculation.

As for the building at 2152 Central, after the fire repairs were needed to the west wall of the 1920s addition. These were made in 1983, and the building would continue to serve as a preschool for many years thereafter. But finally, in 2014, in a return to its electronics and communications roots, the building was purchased by the California Historical Radio Society. And the rest, as they say, is history.

Acknowledgments

We thank Steve Kushman, Richard Watts, and Bart Lee of CHRS, and Woodruff Minor, Judith Lynch, and Valarie Turpen of the Alameda Museum for their help with this article.

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The Strange Story of the Ships of Melody

By John Okolowicz

The "Melody Sail" may be one of the most ephemeral of radio inventions ever conceived and it has an unusual story to go with it.

"What the heck is a Melody Sail?," you ask. Well, it is a small transducer that is mounted to the mast of a miniature wooden sailing ship which enables the sail to act as a loudspeaker.

And why would anyone ever want to do that? Glad you asked. As most of us are well-aware, mid-1920s radios were often housed in drab coffin shaped containers that required a separate stand-alone loudspeaker, Needless to say, these unsightly items did nothing to enhance the décor of a home, so naturally, inventive minds were always dreaming up new and clever ways to improve this situation.

At the same time a fascination with models of old sailing ships was overtaking this country. They were mainly being used as decorative display items, but some speculators actually bought them for their potential for price appreciation.

Model making was also a very popular pastime back then. So naturally as the fascination with small ships grew, people wanted to build them for themselves from plans, many of which were made available in popular magazines of the era such as *Popular Science*, *Popular Mechanics,* and *Science and Invention*. Spanish galleons, such as Columbus' Santa Maria, were especially popular, as were famous clipper ships such as the Flying Cloud, and warships like Old Ironsides (the USS Constitution).

Fig. 1: James E. Sanders a.k.a Lewis Edwards.
Courtesy of Deborah Moore.

Three people play a significant role in this unfolding saga of the Melody Sail. The first two are James E. Sanders (Figure 1), a likeable, but cunning shyster, reminiscent of Randall McMurphy (remember Jack Nicholson's character in *One Flew Over the Cuckoo's Nest?*), and his elderly, widowed mother, Clara J. Bierbower. Then there is Henry G. Brock, a very rich and well regarded Philadelphia banker, who may have inspired some aspects of Jay Gatsby's character in F. Scott Fitzgerald's classic 1925 novel. [1]

Clara Bierbower spent her early years in Illinois married to her first husband, James Russell Sanders, and with whom she had three children, James E., Harriet, and Desmond. After her husband died in 1892 of a freak work accident, she quickly married John W. Harris with whom she had a son. John had trouble holding a steady job and wound up poisoning himself in 1914. That same year Clara moved to Philadelphia where, in 1919, she met and married William Bierbower. Together they bought their home at 3216 Baring Street. Sadly, only four years later he, too, died leaving her a widow for the third time [2][3].

James E. Sanders, Clara's third child, was born in Mt. Carmel, Illinois in 1892 and left home as a young man. Using the alias of Lewis Edwards, James was causing havoc up and down the east coast by committing burglaries. Caught in Florida in 1922, he was imprisoned, but managed to quickly escape to his mother's home in Pennsylvania.

In Philadelphia James resumed his previous nefarious lifestyle wherein he became the head of a small crime syndicate in which he orchestrated the thefts of more than 200 cars. It was a sophisticated scheme wherein all of the cars were resold out of state with new falsified VIN numbers, and phony ownership paperwork to further cover up the crimes.

Eventually Sanders was caught and sentenced to 4 years in the Berks County jail in Reading, PA.

A month into his sentence he made an unsuccessful attempt to escape and in September of 1922 Sanders was re-sentenced to not less than 14 years in Eastern State Penitentiary in Philadelphia.[4][5][6][7]

Eastern State Penitentiary (ESP) (Figure 2) was constructed in 1829. Resembling the Bastille, or what we think the Bastille might have looked like, it was a formidable structure with 30 foot high walls that are 10 feet thick at the base and extend at least 10 feet below ground level. Two of its most famous, or shall we say infamous, residents were Al Capone (1929-30) and Willie Sutton (1934-45).

Fig. 2: Eastern State Penitentiary, Philadelphia, PA.

About nine months after arriving at ESP, Sanders, along with five other inmates, organized a brazen escape on July 14, 1923.[8][9][10] Sanders eventually worked his way to Hawaii (at this time a mere U.S. possession) via San Francisco by posing as a prosperous merchant. Well dressed and self-assured, he easily won the confidence of businessmen. Sanders was in the process of arranging an exhibition in Honolulu on behalf of the San Francisco Chamber of Commerce when he was recognized by authorities. He was captured five months after his escape and sent back to ESP.[11][12]

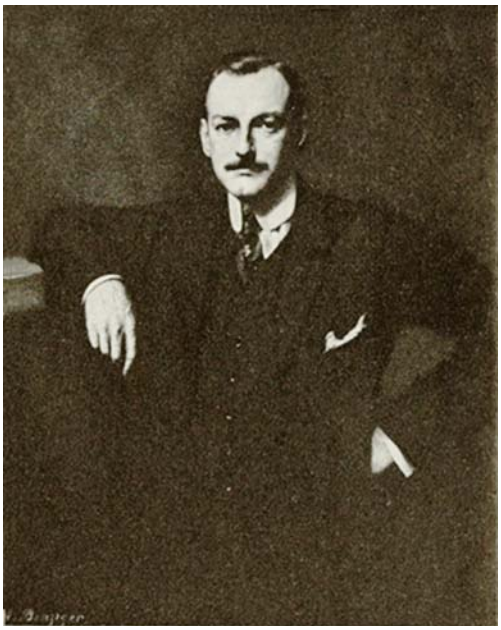


Fig. 3: Henry Gibson Brock.
Image of a portrait by A. Benzinger

While Sanders was still out on the lam, Henry G. Brock (1886-1940) (Figure 3), a very prominent young Philadelphia banker, made national headlines. He was arrested for murder in the accidental killing of three women by vehicular homicide on the night of March 2, 1923.[13][14] Three victims were struck by Brock's speeding car as they exited a streetcar onto the roadway and Brock failed to stop. Brock was arrested as he stood by the side of his blood splattered car that had crashed into a telephone pole a few blocks away. He told officers who arrived at the scene that he was not the driver of the car and also denied he was drinking.

Just one month after his arrest, Brock voluntarily decided to change his plea to guilty and started serving his 6 to 10 year sentence at ESP.[15] The quick guilty plea on his part has led some historians to question his motives and the details of the accident. Was someone, other than Brock, the actual driver? Did Brock take the blame for someone else?

Henry Brock was assigned to work in the prison library. His observation of the dire situation around him motivated him to become actively involved in the welfare of his fellow inmates. At that time prisoners at ESP were allowed to work and keep their earnings as a nest-egg for use after their release, but there was no provision available for them to borrow money to purchase business equipment or supplies. Nor were there many ways to sell any goods produced. This led to excessive prisoner idleness, which, in turn, fostered problems within the prison walls.

Brock made a proposal to the prison warden offering to become both purchasing agent and selling agent for his fellow prisoners using his own money. He told the warden that he did not want to take any profits for himself and that he was willing to take on any potential losses.

Brock's altruism worked like magic and even caught the attention of a *Philadelphia Inquirer* reporter whose story went on to say:

> "Brock's activities on behalf of his fellow prisoners have made him a an idol among the men and have also served to decrease idleness in this institution."
>
> "Prison life has been made a better thing for all of them through this opportunity to do real worthwhile work, in much the same way they would be doing it if they were outside, and with the chance to accumulate comfortable sums for the time after their release."[16]

And the *Philadelphia Evening Ledger* also noticed the dramatic improvements in prisoner morale:

> "Louis A. Edwards (ed: Sanders) has 70 men working for him. He specializes in models of the caravels that carried Columbus and his crew to the new world."
>
> "Edwards has a shop in the seventh block of the penitentiary. It is equipped with circular saws, lathes, buffers, and other equipment. Sanders paints the ship models, giving cunning tints to the sails, the high poops and the budging sides that suggest the effects of long exposure to the swells and winds of the seven seas. His payroll is approximately $1500 per month."
>
> "The purchase of equipment and raw materials for the denim garbed artisans was financed by Henry G. Brock, society man and former banker . . .In the last 2 years Brock has advanced $34,000 to fellow convicts."[17]

Sanders' business became so successful that prison space and labor capacities were overwhelmed; and officials asked Sanders to move some of his operation offsite. He gladly obliged by moving much of the operation to his mother's 3216 Baring St. home.

The Miniature Ship Models company was registered on November 29, 1926 as a Pennsylvania corporation using his mother's home address. James Sanders and Clara J. Bierbower were named co-owners and sole corporate officers.[18] However, shortly afterward they moved the operation out of Clara's home and into a larger factory building at 3818-20-22-24 Baring Street a few blocks away. Advertisements from April 1927 onward reflect this address.

Sanders, possibly with some help from Brock's business expertise and money, very aggressively used full page magazine ads in magazines such as *Popular Science, Popular Mechanics, Science and Invention,* and *Radio News* to promote their ship model products. The costs for the layout, design, and advertising space surely must have been significant.

Initially Miniature Ship Models promoted just two of their ships: the Santa Maria and the Mayflower. From the very beginning in the December 1926 issue of *Popular Mechanics* and all that followed, they boldly proclaimed themselves to be the "world's largest builders of ship models." They sold their model ships as kits that could be assembled at home with minimal tools "only a small hammer was required" was what the ads promised. They also sold their products fully assembled and painted.

As their business grew they added more ships to the lineup such as the Pinta, the USS Constitution, a Spanish Galleon, and two styles of Venetian merchant boats.

In April of 1926 *Science and Invention* started a monthly model building contest awarding a $100 cash prize for the winning project submitted by a reader. Plans for the prize winning project were also published in the same issue, which served as a promotional tool (Figure 4).

Fig. 4: Early Miniature Ship ad from *Science and Invention* declaring "Wins First Prize," April 1927, inside front cover.

Enlarged image of Clara Bierbower with her award.

Sanders' Santa Maria was entered in the model contest for March 1927. It was stated that Clara was the model builder and, as luck would have it, the Santa Maria actually became the prize winner.

March's model building headline read: "Model entered by Clara J. Bierbower of Philadelphia wins ninth Science and Invention Model Cup – first woman to win a cup in the model contest. . . . . Mrs. Bierbower has built many other interesting models and understands ship rigging to perfection. Ancient vessels are her specialty." Capitalizing on this good fortune, the next Miniature Ship Models ad that appeared in *Science and Invention* included a picture of Clara holding her trophy.

Readers had no idea that Clara was actually the co-owner of Miniature Ship Models, probably not the model builder, and as far as we know, had no particular skill or knowledge about ancient ships or ship model building.

Using Clara's name as a testimonial to vouch for the Santa Maria's ease of assembly and/or artistic beauty was a commonly used advertising strategy by Miniature Ship Models. Most of their ads also had the headline "Wins First Prize" at the top in very bold letters to make their products appear to be extra special and stick out from the crowd.

Remaking the unsightly radio loudspeaker into something attractive and worthy of being displayed was something a few ambitious entrepreneurs tried to do for years. In 1927 Vitalitone introduced a cone speaker in a metal rim with a metal embossed "pirate ship" in the front (Figure 5). Later they also added a Santa Maria version to their lineup, to cash in on its popularity. By April 1927 the idea to disguise a ship model and use it as a decorative radio speaker appeared in a few different places.

Fig. 5: Vitalitone speaker ad. *Radio Broadcast,* January 1927, p243

"A Ship Model Loud Speaker: How a Decorative Loud Speaker Can Be Easily Made" was published in *Radio News'* April 1927 issue and it was authored by James Francis Clemenger. He used a ship obtained from the Miniature Ship Models company (we know that by looking at his photo credits) but he made no specific sales pitch for any of the products referenced in his article.

Clemenger takes full credit for this idea. Here is how he puts it:

> "It occurred to the writer some weeks ago that it might be a good idea to combine the latest of fads in household ornaments with an efficient reproducing unit, to afford a most pleasing appearance with the highest degree of satisfactory reproduction. Ship models are undoubtedly the rage of the present season, as far as interior decorating goes. They are to be found in all sizes and types, from the tiniest silver galleons to huge models of ocean-going liners. . . . . "
>
> "Obviously an ideal thing to do would be to incorporate a loud speaker in some way in the design of a model ship, doing away with the cone or horn, and replacing it with a handsome and graceful miniature vessel. Several ideas suggested themselves but it soon became apparent that the only method which would answer was that involving the use of some sort of speaker unit, so connected to one of the sails that it would cause the sail to vibrate and set the air in motion."
>
> "Utilizing the principle devised by Clyde J. Fitch of driving a speaking surface along the length of the paper fibers, through the impulse of a special type of unit, the writer developed the sail speaker pictured here."

Fig. 6: Ensco Speaker Kit ad. Radio World, May 14, 1927.

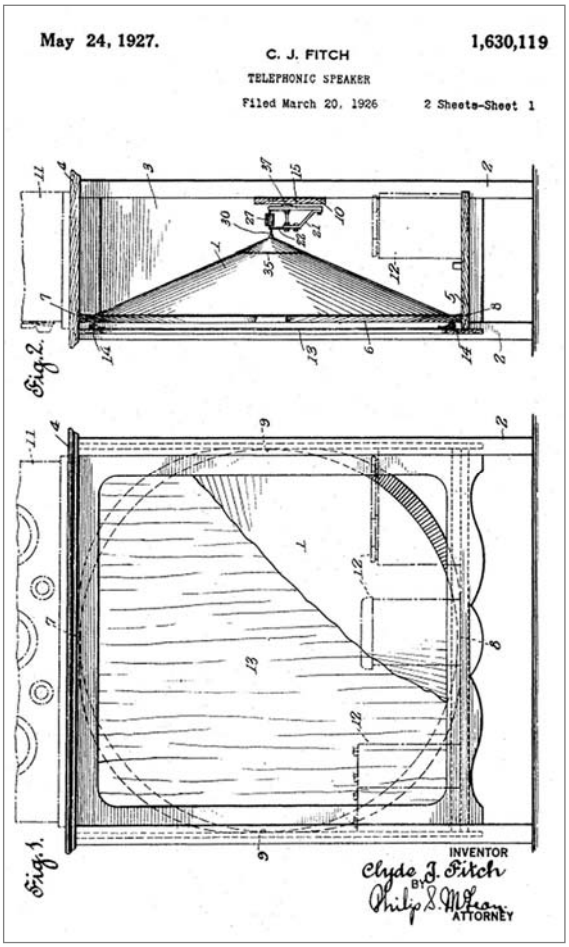


Fig. 7: Clyde J. Fitch's patent for a Telephonic Speaker, patent #1,630,119 (only page 1 shown).

Clyde J. Fitch (1900-1995) was a young engineer working for the Engineers' Service Co. (their tradename is Ensco) as well as a writer for *Radio News* magazine. Ensco's speaker driver was designed and patented by him (Figures 6 and 7). That is probably the one that was used in the above article.

Coincidentally, James Sanders came up with the ship speaker idea at about this same time. He may have been inspired by one of the magazine articles of that era in which a cone speaker was used to power any number of unconventional items. Even an item as wacky as a Christmas tree.

The Miniature Ships catalog states "The Melody Sail is covered by American and Canadian patents," but we can not find any patents by Sanders in the U.S. He did patent his concept in Canada CA280490. The Canadian application was made in July 1927 and it was granted in May of 1928. Figures 8 and 9 show the drawings submitted as part of the patent application. There are another 6 pages of text that describe his patent claims. Since most of his sales were in the U.S., it is baffling why he would bother with the expense of getting a Canadian patent at all --- especially considering that he was behind bars all of this time.

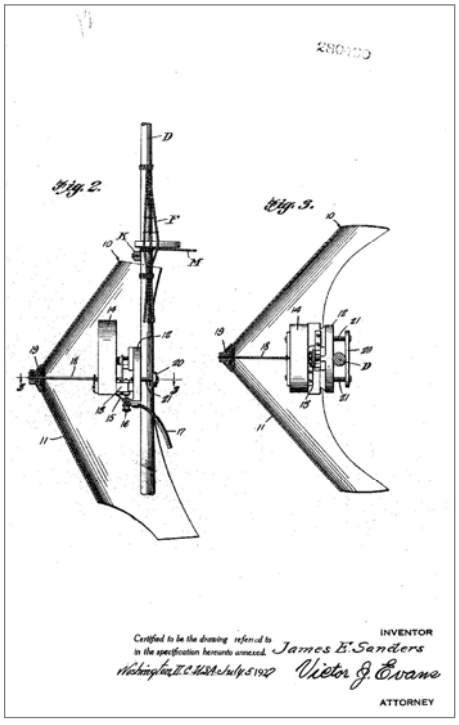


Fig. 8: Canadian patent for Melody Sail page 1.

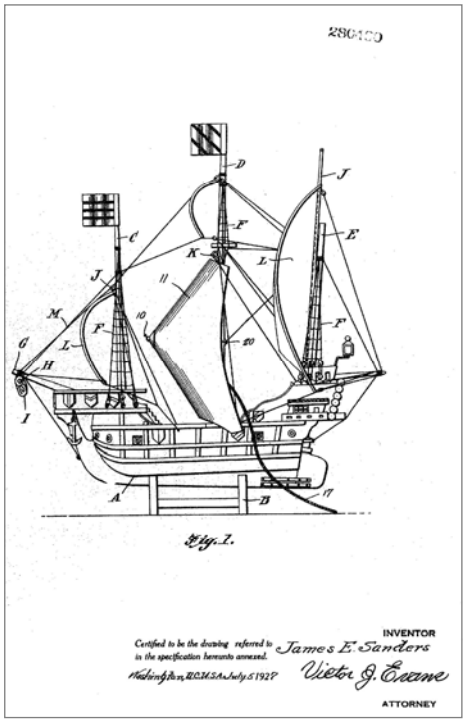


Fig. 9: Canadian patent for Melody Sail page 2.

On April 24, 1927 the *Philadelphia Inquirer* newspaper ran an article about Sanders and his creation titled "Loud Speaker Built in Little Ship Model." The article described the Melody Sail's design history and function and here are some excerpts:

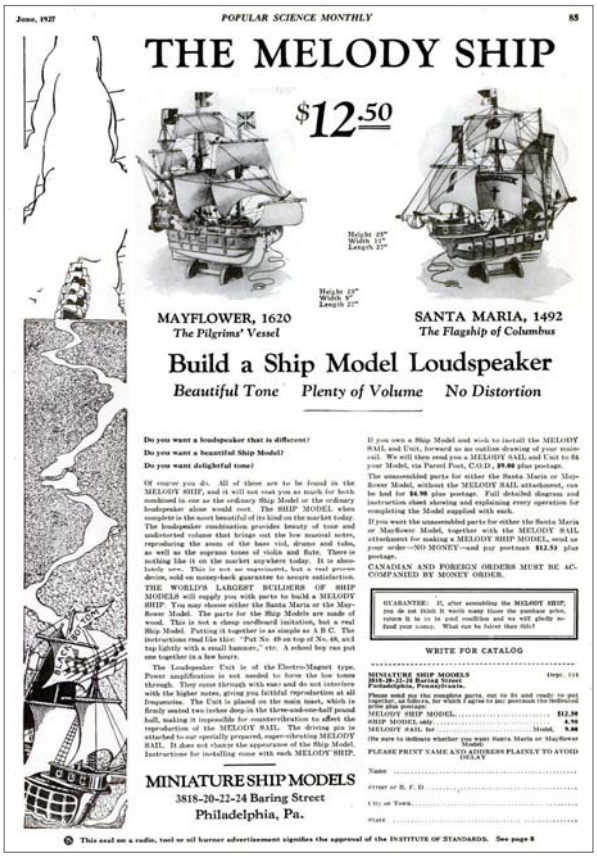
> "With the idea in mind of producing a loudspeaker which would be both beautiful to the eye and ear, J. E. Sanders, a Philadelphian, has developed such a practical instrument after many months of experimentation. This reproducer is known as the 'Melody Ship.' It is both unique in its design and beautiful in appearance."
>
> "The instrument is a miniature ship model with a cone type loudspeaker cleverly incorporated in the mainsail of a barkentine or Spanish Galleon of many centuries ago. . . .It bespeaks adventure."
>
> "The romance of ships and the sea is much like the romance of radio. Just as the mariners of old never knew what they would discover when they sailed forth on their voyages of adventure; just so the radio listener twirls the dials on his set without knowing what he may tune in, and then picks up a programme hundreds of miles away with the music coming from one of the earliest modes of travel. That is adventure."

Notably absent in that article was any mention of the fact that James Sanders was currently incarcerated in Eastern State Penitentiary.

Due to magazine layout lag times, it was not possible that the alternate ship speaker articles in *Radio News* and *Radio World* could have influenced him because all of them appeared concurrently.

The first magazine ads for the Melody Sail did not appear until June of 1927. *Popular Mechanics, Popular Science,* and *Science and Invention* all carried full page ads for the "Ships of Melody," as they were also referred. Months later, ads appeared in *Radio News, Radio Age,* and *Radio Retailing*, among others (Figure 10).

As with their other products, the Ships of Melody were sold as kits or assembled. Only the Santa Maria, Mayflower and Pinta were sold with the Melody Sail as an option. The other ships, such as the USS Constitution, did not have a single sail that was large enough to make a satisfactory speaker. Figure 11 shows the Santa Maria entry from their catalog.



June, 1927 POPULAR SCIENCE MONTHLY 85

THE MELODY SHIP

$12.50

MAYFLOWER, 1620
The Pilgrims' Vessel

SANTA MARIA, 1492
The Flagship of Columbus

Build a Ship Model Loudspeaker

Beautiful Tone Plenty of Volume No Distortion

Do you want a loudspeaker that is different?
Do you want a beautiful Ship Model?
Do you want delightful tone?

Of course you do. All of these are to be found in the MELODY SHIP, and it will not cost you so much for both combined in one as the ordinary Ship Model or the ordinary loudspeaker alone would cost. The SHIP MODEL when complete is the most beautiful of its kind on the market today. The loudspeaker combination provides beauty of tone and undistorted volume that brings out the low musical notes, reproducing the zoom of the bass viol, drums and tubs, as well as the soprano tones of violin and flute. There is nothing like it on the market anywhere today. It is absolutely new. This is not an experiment, but a real proven device, sold on money-back guarantee to secure satisfaction.

THE WORLD'S LARGEST BUILDERS OF SHIP MODELS will supply you with parts to build a MELODY SHIP. You may choose either the Santa Maria or the Mayflower Model. The parts for the Ship Models are made of wood. This is not a cheap cardboard imitation, but a real Ship Model. Putting it together is as simple as A B C. The instructions read like this: "Put No. 49 on top of No. 48, and tap lightly with a small hammer," etc. A school boy can put one together in a few hours.

The Loudspeaker Unit is of the Electro-Magnet type. Power amplification is not needed to force the low tones through. They come through with ease and do not interfere with the higher notes, giving you faithful reproduction at all frequencies. The Unit is placed on the main mast, which is firmly seated two inches deep in the three-and-one-half pound hull, making it impossible for countervibration to affect the reproduction of the MELODY SAIL. The driving pin is attached to our specially prepared, super-vibrating MELODY SAIL. It does not change the appearance of the Ship Model. Instructions for installing come with each MELODY SHIP.

If you own a Ship Model and wish to install the MELODY SAIL and Unit, forward us an outline drawing of your mainsail. We will then send you a MELODY SAIL and Unit to fit your Model, via Parcel Post, C.O.D., $9.00 plus postage.

The unassembled parts for either the Santa Maria or Mayflower Model, without the MELODY SAIL attachment, can be had for $4.98 plus postage. Full detailed diagram and instruction sheet showing and explaining every operation for completing the Model supplied with each.

If you want the unassembled parts for either the Santa Maria or Mayflower Model, together with the MELODY SAIL attachment for making a MELODY SHIP MODEL, send us your order—NO MONEY—and pay postman $12.50 plus postage.

CANADIAN AND FOREIGN ORDERS MUST BE ACCOMPANIED BY MONEY ORDER.

GUARANTEE: If, after assembling the MELODY SHIP, you do not think it worth many times the purchase price, return it to us in good condition and we will gladly refund your money. What can be fairer than this?

WRITE FOR CATALOG

MINIATURE SHIP MODELS Dept. 118
3818-20-22-24 Baring Street
Philadelphia, Pennsylvania

Please send me the complete parts, cut to fit and ready to put together, as follows, for which I agree to pay purchase (no indirect price plus postage.

MELODY SHIP MODEL..... $12.50
SHIP MODEL only..... 4.98
MELODY SAIL for..... Model. 5.00
(Be sure to indicate whether you want Santa Maria or Mayflower Model)

PLEASE PRINT NAME AND ADDRESS PLAINLY TO AVOID DELAY

Name .....
Street or R. F. D. .....
City or Town .....
State .....

MINIATURE SHIP MODELS
3818-20-22-24 Baring Street
Philadelphia, Pa.

This seal on a radio, tool or oil burner advertisement signifies the approval of the INSTITUTE OF STANDARDS. See page 8

Fig. 10: Melody Ship ad. *Popular Science,* June 1927, p85.

Model No. 1—"SANTA MARIA" (Large)
25" high; 11" wide; 27" length (overall)

"SANTA MARIA" (Year 1492)

This is the model of the "Santa Maria", in which Columbus sailed into the West and proved that a great Continent lay beyond the Atlantic.

As sailors advanced in navigation they made great improvements in the design and riggings of their ships, and were thus able to sail further away from land.

They no longer used oars—having become much more skillful in the use of sails, to the mainsail of the older vessels we see two more masts and top sails added.

The "Santa Maria" was 90 feet long, 20 feet beam and carried a crew of fifty-two.

KIT No. 1, $4.98. See Page Six

Kit No. 5. Melody Ship, Complete Kit, $12.50. Kit parts are shown on pages 6-32. Page 18 shows Melody Ship assembled from parts supplied in Kit No. 5.

Price on Completed Model, Painted and Decorated in Our Studio, $75.00

Melody Ship, $90.00

Absolutely no experience is needed in carpenter work or wood working to assemble any of the ship models, loud speakers, or knock-down furniture pictured in this booklet. These articles have all been carefully worked out so that a child can put any of them together in a few hours of pleasant and interesting pastime.

H. A. NACK, Vice-President.

4

Fig. 11: Santa Maria ship speaker description from their catalog.

Seven ships listed in the table below, and shown in their catalog, are the complete product line. The Spanish Galleon and 2 Venetian Merchantman ships are not shown as being available with a Melody Sail. However, in discussing this with Buford Chidester, author of *Classic Cones: Pictorial Reference and Value Guide for 1920's Radio Cone Speakers*, he claims they were also available with a Melody Sail.

Miniature Ship Models - Product Catalog						
	Product	Ships Kit Price	Ship Assembled Price	Melody Speaker Ship Kit Price	Melody Speaker Ship Assembled Price	Dimensions
1	Santa Maria	$4.98	$75.00	$12.50	$90.00	25"H x 11"W x 27" L
2	Mayflower	$4.98	$75.00	$12.50	$90.00	25"H x 10"W x 26" L
3	La Pinta	$4.98	$75.00	$12.50	$90.00	26"H x 12"W x 27" L
4	USS Constitution	$6.98	$50.00	N/A	N/A	30"H x 10"W x 32" L
5	Spanish Galleon	NA	NA	N/A	$250.00	30"H x 15"W x 23" L
6	Venetian Merchantman (L)	NA	NA	N/A	$500.00	53"H x 22"W x 43" L
7	Venetian Merchantman (S)	NA	NA	N/A	$150.00	30"H x 15"W x 30" L

Dave Crocker wrote about the large Venetian ship (figure 12) in the October 1999 issue of the *Antique Radio Classified* as follows:

> "the unit is fully rigged and has eight tiny cast iron sailors in the rigging all of which are hand painted. House current powers the lighting in the hull interior and the tiny green treasure chests on deck. The ship is named the *Venetian Lepanto*. . . ."

According to their catalog entry (see table above) the Venetian ships (large and small) were only offered fully assembled.

Already have a model galleon and want to turn it into a speaker? No problem. Custom sails were also an option. The catalog entry for the Melody Sail itself states:

> "If you have a ship model and wish to attach the Melody Sail and Unit, draw a tracing of the center sail on your model and send it to us. We will have a sail made to fit your model. Full instructions come with each Melody Sail. It will take only five minutes to place on your model. Price of Sail and Unit $9.00" (Figure 13).

The ship fad craze was not lost on Atwater Kent. In August of 1927 they ran a colorful ad picturing one of their coffin shaped table model radios next to a Spanish Galleon (Figure 14). A galleon likeness was also embossed on the top of the model 35's metal lid. Could this have been a subtle reference to the Miniature Ship Models' products?

February 1928 was the last month that any full page ad mentioned the Melody Sail. Curiously, there was a small press release in the February issue of Science and

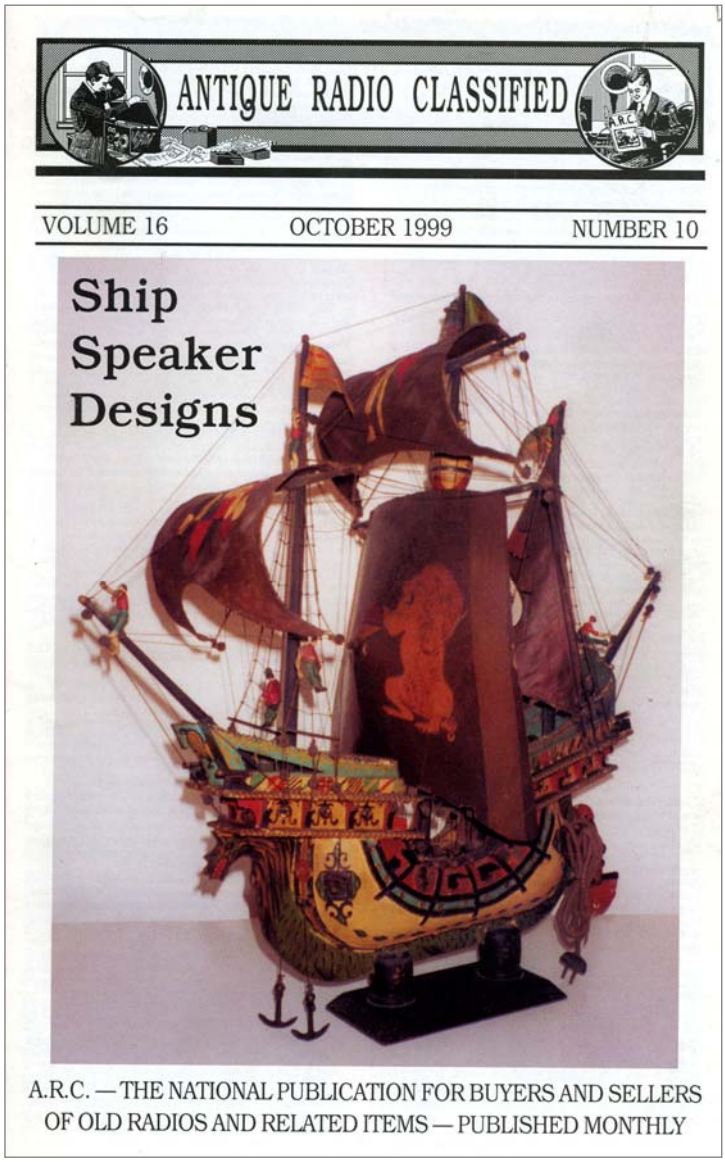
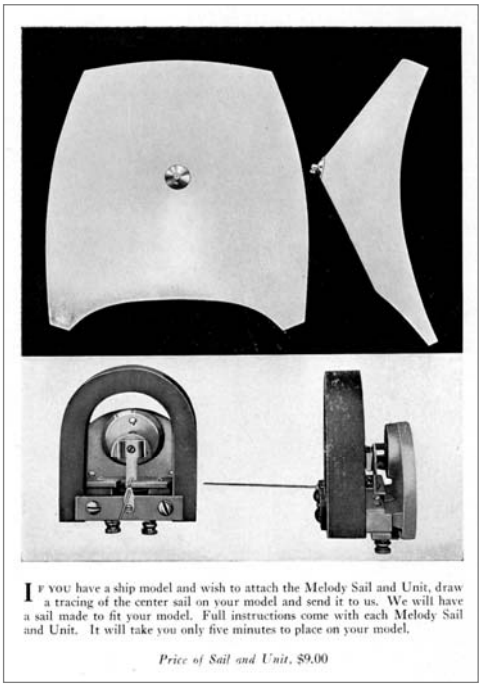


Fig. 12: Venetian Ship on the cover of the October 1999 issue.
Antique Radio Classified.

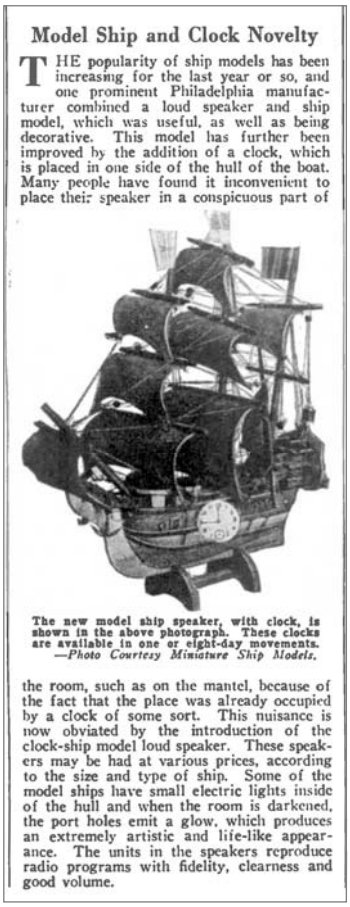


If you have a ship model and wish to attach the Melody Sail and Unit, draw a tracing of the center sail on your model and send it to us. We will have a sail made to fit your model. Full instructions come with each Melody Sail and Unit. It will take you only five minutes to place on your model.

Price of Sail and Unit, $9.00

Fig. 13: Melody unit description.
From their catalog, page 31.

Fig. 14: Atwater Kent radio ad next to Spanish galleon. From *Literary Digest,* August 6, 1927, back cover.



Model Ship and Clock Novelty

THE popularity of ship models has been increasing for the last year or so, and one prominent Philadelphia manufacturer combined a loud speaker and ship model, which was useful, as well as being decorative. This model has further been improved by the addition of a clock, which is placed in one side of the hull of the boat. Many people have found it inconvenient to place their speaker in a conspicuous part of

The new model ship speaker, with clock, is shown in the above photograph. These clocks are available in one or eight-day movements. *—Photo Courtesy Miniature Ship Models,*

the room, such as on the mantel, because of the fact that the place was already occupied by a clock of some sort. This nuisance is now obviated by the introduction of the clock-ship model loud speaker. These speakers may be had at various prices, according to the size and type of ship. Some of the model ships have small electric lights inside of the hull and when the room is darkened, the port holes emit a glow, which produces an extremely artistic and life-like appearance. The units in the speakers reproduce radio programs with fidelity, clearness and good volume.

Fig. 15: Melody Sail plus clock.
Science and Invention, February 1928,

Invention that showed a new version of their Melody Sail which also included a clock in the hull of the ship (Figure 15). Nevertheless, consumer interest in sailing ship models was still alive and Miniature Ship Models continued to run small ads (approximately 1" tall) well into the 1930s.

Epilogue

James Sanders made a successful plea for his pardon on January 16, 1929 and according to the *Reading Times*:[19][20][21][22][23][24]

> "The case of James E. Sanders. . .was perhaps the most remarkable case ever to be presented to the board.. . .and it is believed to be without precedent in this state . . . it had the unanimous approval of the board of trustees of that prison, and granted after he had once escaped and had served only a little more than five years of a sentence of nearly 30 years."
>
> "Sanders is the genius behind a thriving, though small, industry born behind the walls of that prison.
>
> "Mr. Heine (his lawyer) said a great moral change came over him in 1924 when he went back to prison after his escape to the Hawaiian Islands."

After Sanders was freed, the history of the Miniature Ship Models company gets murky.

In July 1929 Sanders moved the Miniature Ship Model plant to rented quarters in the former Perkasie Knitting Company in Perkasie, PA using a new name of Model Woodworking.[25] Six months later that plant was destroyed by fire. In April 1930[26] Sanders sold his interests in the Miniature Ship Models to Benjamin Moore, and they continued to operate from Perkasie in newly rebuilt quarters well into the 1940s.[27][28]

We don't know how much, or if, Clara was consulted regarding the sale of Miniature Ship Models to Ben Moore, but Clara began a competitive model company from her home doing business as C. J. Bierbower almost immediately thereafter. Her small one column-inch advertisements ran in *Popular Science* and *Popular Mechanics* magazines until around February 1934.

Sometime in the 1940s Clara obtained a state license to use her home (the original Miniature Ship Models "factory") as well as another nearby property as nursing homes, but in 1949 her license was not renewed due to code violations. She ignored them and continued to operate.

On March 27, 1951 Clara was arrested by the city of Philadelphia for operating unlicensed nursing homes. She was subsequently fined, shut down, and the elderly residents were moved to other facilities.[29] Clara died four years later at age 88.[30]

In February 1933 James Sanders again made headlines. "Former Perkasian Head of Biggest Crime Syndicate" was the leading headline in Perkasie's local paper. He was convicted of nine counts involving holdups and other crimes along with five other bandits.[31][32]

Sanders was given a 7-10 year sentence in Holmesburg Prison. After serving some of this sentence, he managed to get released yet again.[33] His final years are a mystery, but it appears that he wound up in California working as a locksmith for the Yosemite National Park for the last 20 years of his life. He died there in 1967 at age 75 in obscurity.[34]

Henry Brock was pardoned and released on July 2, 1926 after serving 3 years of his 6 year sentence. He continued to play a major part in trying to improve the lives of prisoners long after he was freed. In January 1932 he was selected to be on the Eastern State Penitentiary's Board of Trustees.[35] Brock died in 1940.

Acknowledgments

The author wishes to very gratefully acknowledge Deborah Moore who kindly shared her intensively researched family history and without which this article could not have been produced.

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Just How Did The 525-Line U.S. Television Standard Come About?

By John Staples

Standards, standards, standards! The black-and-white TV standards came about after wars among competing communications giants were finally settled. Big egos, lawsuits and corporate maneuvering finally resulted in an agreed set of transmission standards for the beginning of the electronic television age. It's a story with a lot of intrigue.

Why are standards needed? In the early mechanical days of experimental television, there were few standards.

In the U.S. from the late 1920s to early 1930s the TV pioneers such as ATT, Alexanderson/GE, Jenkins, Farnsworth and RCA used line-count and frames-per-second values such as 48 lines /16 fps, 90 / 20, and 24 / 21.

These low-resolution transmissions occupied a video bandwidth of a few kilohertz and could be transmitted using transmitters in the standard AM broadcast band. Mechanical television sets were constructed by amateur radio operators, built from kits, or offered commercially. This was like the early days of radio where experimenters built crystal sets to listen to the first broadcast stations.

The U.S. Department of Commerce established the Federal Radio Commission (FRC) in June 1927 to assign radio frequencies and power limits to radio stations in the U.S., amateur and maritime, and frequency slots for AM broadcasters.

As the number of scanning lines and frame rates increased, the FRC allocated three 100 kHz wide bands in the 2 to 3 MHz part of the radio spectrum. The 1929 Western Television Visionette in the CHRS TV gallery used a 45 line triple -interlaced 15 frames per second scanning rate in this band.

The era of mechanical television was over by 1932, due to poor program materials, images of low entertainment value and the depression following the market crash of 1929. But the quest for electronic television was just beginning.

The development of all-electronic television required advances in camera image tubes and receiver display tubes.

Twenty-one year-old Philo T. Farnsworth invented the image dissector in 1927, first disclosing the idea to his high school science teacher. Capable of producing a very good image, it lacked sensitivity and required large illumination. Later improvements reduced the light requirement, and the image dissector found use in film chains and industrial applications. Its lack of sensitivity was similar to mechanical television scanners, where the electrical signal from each pixel in the image was recorded only during the time that pixel was scanned.

The sensitivity of camera tubes was improved with the invention the storage principle where the entire image can be stored on a matrix of small capacitors as found in the iconoscope, where each pixel is allowed to build up the charge before it is scanned. Russian-born Vladimir K. Zworykin applied this storage principle, suggested earlier by others, and developed a practical design by the early 1930s.

The electronic-based television activity was a wild shoot-out. Farnsworth was transmitting 343 lines and later 441 line images at 30 frames per second, and Philco was using 605 lines at 24 fps. Dumont was experimenting with 625 lines at 15 fps. Don Lee broadcasting in Los Angeles started off at 300 lines at 24 fps, later transitioning to 441 and then 525 (!) lines at 30 fps. RCA used 507 and then 441 lines at 30 fps. This was a period of active research to find the optimum for the 6 MHz mandated channel width and viewer satisfaction.

The Communications Act of 1934 abolished the FRC and established the Federal Communications Commission (FCC) on 1 June 1934 to promote radio communication and national defense.

In 1935 the board of directors of the Radio Manufacturers Association (RMA) established an interest group to look into television standards. This special interest group set up two committees, one to investigate standards and the other to investigate allocations. A report would be submitted to the FCC.

The allocation committee of the RMA recommended to the FCC that seven television channels be established, each 6 MHz wide in the 42 – 90 MHz frequency spectrum. Experimental channels could operate above 120 MHz.

Preliminary synchronization standards were suggested, but not yet fixed. The RMA standards committee recommended a 441-line, 30 interlaced frames per second standard. The transmission would be amplitude-modulated double-sideband and the audio carrier would be 3.25 MHz above the visual carrier. The picture aspect ratio would be 4:3. Darker parts of the picture would be transmitted as a higher carrier power (negative modulation). Amplitude modulation specified for the audio channel.

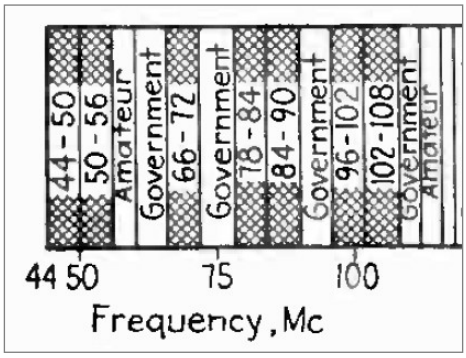
This set of standards was published in November 1936 which contained five salient points:

1: One single set of standards for the entire USA;
2: A high definition picture similar to home movies;
3: Nation-wide coverage;
4: More than one program (station) in large population centers to satisfy community standards;
5: Low receiver cost and easy tuning.

The FCC responded in August 1936 with regulations providing 6 MHz-wide frequency slots of 42 to 56 MHz and 60 to 86 MHz with experimental transmissions above 110 MHz. The FCC made several other 6 MHz-wide assignments in the following years up to WWII. Many adjustment followed.

The FCC decided not to fix transmission standards at this time, to promote furthering the state of the art by the broadcasters. The FCC followed this policy for several years before finally freezing the transmission standards.

Meanwhile, the format wars in the UK were played out earlier than in the U.S. Scotsman John Logie Baird had pioneered image transmission with his 30 line 12.5 frames per second mechanical system. The BBC broadcast his 30 line programs over the station 2LO from Marconi House in London.



FCC 6 MHz-wide frequency slots.

Over the years Baird improved his system to a 240 line 50 fps system. Meanwhile the EMI-Marconi group developed a competing 405 line 25 fps interlaced system. The start of the "high definition" television broadcasting service with both systems from a BBC transmitter at the Alexandra Palace began on 2 November 1936.

The BBC refused to make a format selection between the two competing standards, so both scanning standards were broadcast on alternate times or alternate nights to receivers that could adapt to either standard. The 240 line transmission could not compare to the EMI standards in terms of programming although the mechanically-scanned film images were quite good. When the Baird laboratory was gutted by fire at his Crystal Palace lab, the BBC switched solely to the 405 line standard on 4 February 1937. The 405 line standard remained in operation in the UK until 2 January 1985, when it was replaced by the 625 line PAL standard.

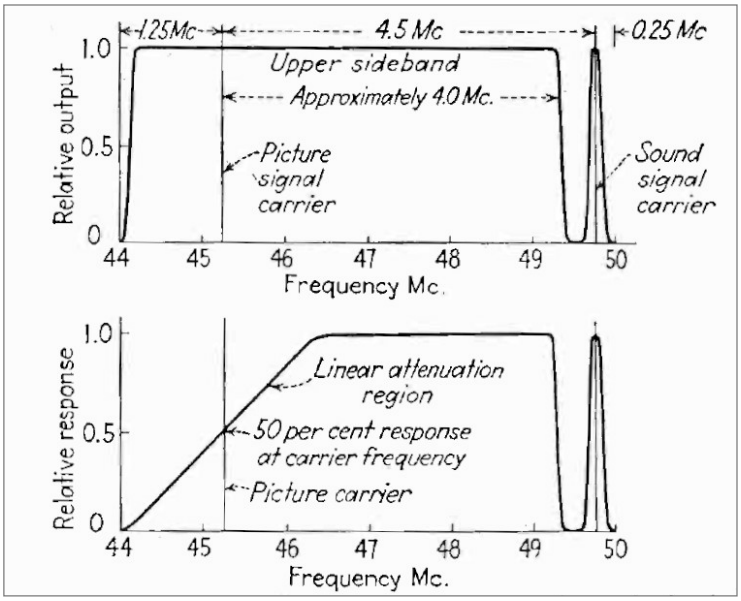
The RMA continued to refine the U.S. standards through 1937 to 1938. Horizontal polarization of the transmitted signal was recommended, along with retaining the DC component of the video signal, so that black faded to black in the receiver. The definition of the synchronizing waveform was sharpened up.

Originally, double-sideband modulation of the video carrier was used. However, since both sidebands contain the same information, only one (vestigial) sideband is needed. A wider video bandwidth could be transmitted in the same 6 MHz wide channel. The filter response in both the transmitter and receiver was the basis of a significant study.

The upper figure shows the spectrum from the transmitter, where the vestigial sideband is attenuated 1.25 MHz below the picture carrier. In the receiver, the IF bandpass response puts the carrier at the one-half response point.

If the receiver response curve were the same as the transmitter response curve, the demodulated video above 1.25 MHz would be at half amplitude, relative to below 1.25 MHz, as the full sidebands within 1.25 MHz of the carrier would provide twice the signal level of the single sideband above 1.25 MHz. The receiver response curve shown corrects this video response problem.

With the acceptance of the vestigial sideband transmission, the spacing between the video and audio carrier frequency was increased from the original 3.25 MHz to 4.5 MHz.



Upper is the transmitted frequency spectrum.
Lower is the receiver response curve

By 10 September 1938 the RMA Subcommittee on Television Standards submitted to the FCC the set of standards described above, but suggested that the standards may be further defined, especially the specifications for the television transmitter such as power for the audio and video carrier and minimum modulation percentage for the white level in the picture.

Hearings between the RMA and FCC, for the FCC to consider and approve the submitted standards, did not start until January 1940. In the meantime, however, RCA stated that they were going to begin transmitting programs on a regular basis with the 441 line system and began production of receivers for public consumption. RCA intended to commemorate their television service at the April 30th 1939 New York World's Fair.

There was immediate opposition from Zenith and Philco, who had not started to produce consumer receivers. The FCC had not officially approved of the standards submitted by the RMA. The FCC had approved some rules for broadcasting, including the rules governing commercials and sponsorship of programs. The funds from commercial broadcasting were to be used primarily for experimental development of the television service. The FCC set up two classes of stations: Class I for unscheduled experimental programs, and Class II for a scheduled program service.

Other industrial participants objected. DuMont thought the standards were too inflexible and would like to see a higher than 441 line specification. Philco thought the up to 800 lines with a lower frame rate would result in better pictures.

The standards at the time had not been officially accepted by the FCC, who wanted to wait and see if further experimentation could result in a technically improved service. It recommended that no attempt be made by the industry to issue a final set of standards at that time. It emphasized that agreement on standards at that time was less important than the scientific development to the highest standards by the industry's experts.

On 22 March 1940 the FCC reconsidered limiting the commercial operation of television stations, as RCA had announced to step up its production of television receivers. This could freeze the standards that the FCC still wanted to be open to further refinement. In a May 1940 meeting the FCC stated that commercialization was possible when the entire industry agreed to a set of standards. The Class II (commercial) class of operation was then eliminated. The FCC wanted further experimentation and technical development on a single set of standards.

In 1940 the formation of the **National Television Standards Committee** (NTSC) was proposed by FCC chairman James Lawrence Fly and Walter Ransom Gail Baker, director of engineering of the RMA. The first meeting of the NTSC was held on 31 July 1940.

The statement of purpose indicated that it should be independent of all other organizations and will represent a majority opinion of the television industry.

The organizations selected to supply one representative to the NTSC included BTL, CBS, Don Lee, DuMont, Farnsworth, GE, Hazeltine, IRE, Philco, RCA, Zenith and a few others.

Initially, the NTSC formed nine expert panels:

Panel 1: System Analysis of Television Systems, both U.S. and foreign;
Panel 2: Subjective Aspects of Television – Human factors in assessing the picture quality;
Panel 3: The Television Spectra – Sound and Video channel widths;
Panel 4: Transmitter Power – Ratings, modulation capabilities sound vs video power;
Panel 5: Transmitter Characteristics – Signal polarity, black level;
Panel 6: Transmitter-Receiver Coordination, especially vestigial sideband filter shape;
Panel 7: Picture Resolution – Aspect ratio, frame frequency, interlace;
Panel 8: Synchronization – Method, waveforms;
Panel 9: Polarization of Radiated Signal – Horizontal or vertical.

The NTSC carried out its business rather quickly. Panel meetings began in September 1940. A progress report was presented to the FCC on 27 January 1941. Substantial agreement had been had for all parameters except for the 441 line specification. At the final NTSC meeting on 8 March 1941, the specifications for synchronization details and FM sound were finalized and the line count was changed to 525 lines. This last change was proposed by Donald Fink at the last minute.

The NTSC delivered its final report to the FCC on 20 March 1941, just over a year from its first meeting. In May 1941 the FCC announced that the standards were accepted and broadcasting using the new standards would commence on 1 July 1941.

How did the NTSC go about the technical and engineering process in establishing an agreed-upon set of standards to submit to the FCC? It's interesting and educational to look into some of the detailed discussions of some of the panels, to observe the details the panels went into, the various options that were proposed.

Panel 1: System Analysis of Television Systems, first gathered information of all operating electronic standards around the world, especially scanning formats, synchronization and video and audio transmission.

A considerable effort was devoted to the prospect of color television. Baird had already demonstrated 2-color and 3-color systems in the 1930s. CBS laboratories had been carrying out color tests with rotating segmented color discs in front of the camera and the television reproducer. This field-sequential system did not take into account the physiological characteristic of the eye which does not discriminate color for very small color samples, and did not economically use the 6 MHz-wide channel. The CBS and other color methods of the time used a smaller line count and a higher frame rate. Even so, color breakup of moving objects was evident.

A questionnaire of 50 technical questions was drawn up on technical issues of color television and the committee voted on each of them to establish a consensus.

The panel recommended that "the art does jot justify the recommending of standards for color television at the time."

The panel also investigated different scanning configurations such as sinusoidal, circular and sawtooth, picture aspect ratio, interlace, and synchronization issues.

Panel 2: The Subjective Aspects of Television, also drew up a series of 50 questions, including 17 on color television, of how the viewer would perceive the televised picture. These questions included aspect ratio, arrangement of viewers, imperfect interlacing and visual fatigue.

For example, question 22 considered the gradation, now called "gamma" of the displayed picture: the ratio of highlights to lowlights in the picture. This issue has important implications as the cathode-ray-tube has a non-linear light output with respect to the brightness modulating voltage, and various camera pickup-tubes have other types of response to brightness levels.

Question 24 addressed the "jerkiness" of moving objects in the frame and the influence of scanning and interlace on this.

A lot of effort was given to the 17 questions about color television. Clearly, color was on the mind of the committee before even the black-and-white standards were established.

Panel 3: The Television Spectrum of the television channel considered the placement of the video and audio carriers within the 6-MHz channel and compromises required in the transmitter and the receiver for vestigial (single-sideband) video transmission.

The design of the receiver must reject audio and video carriers in adjacent channels, which places strict requirements on the IF bandpass and band-reject filters, which determine the cost of the receiver. Various carrier frequencies were considered including a 1.25 MHz spacing between the audio and the vestigial side of the video carriers, but the panel accepted the previous 4.5 MHz spacing with the audio carrier 0.25 MHz below the top end of the channel.

More important is the implementation of the vestigial sideband filters in the transmitter and in the receiver. At this time, few channels may be available in a local area and stations may be assigned adjacent channels. Later, in practice, this would not be the case.

The choice between AM and FM sound involved a far-ranging discussion of the interference the sound carrier would have in the picture and of the complexity of the IF response curve. This panel did not come up with a clear decision on the audio modulation selection.

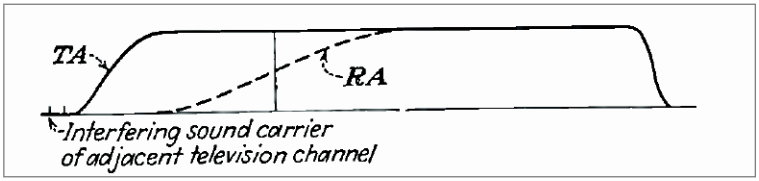
Panels 4 and 5: Transmitter Power and Transmitter Characteristics combined their efforts as the issues were similar. As with the previous panel they favored FM sound as it presents a better noise immunity. The sound carrier power should be 20 to 50% of the peak video carrier power. For high-power transmitters, FM actually results in less expensive equipment.

The panels endorsed negative picture modulation resulting in black being sent at the higher power. The sync pulses are blacker-than-black and provide a reference for automatic gain systems in the receivers as well as blanking during retrace. Also, impulse noise would not show as strongly as in a positive modulation scheme.

Panel 5 recommended direct-current (DC) transmission, so a fade-to-black will fade to a definite carrier power. If DC restoration is used in the receiver, the average illumination of the scene will be preserved. As it turns out, many cheap receivers eliminated DC restoration, so the average illumination of the screen remained relatively constant rather than preserving the original scene brightness, but had the effect of allowing less regulation of the high-voltage power to the CRT.

The design of large transmitters is made simpler since the transmitter will operate at maximum power only during the sync peaks and at about 50% for most video content.

Panel 6: Transmitter-Receiver Coordination treated the transmitter and receiver as two parts of a system that operate in sync with each other, This is especially important in the selection of the type of vestigial sideband filtering that is used in the transmitter and the IF response curve in the receiver. This issue was also discussed in the Panel 3 group. The two approaches were called the receiver-attenuation system (RA) and the transmitter-attenuation system (TA), or with the two responses reversed between the receiver and the transmitter.



Comparison of the transmitter attenuation (TA) and receiver attenuation (RA).

To have a uniform detected video frequency response in the receiver with a vestigial sideband spectrum from the transmitter, the overall filter response of the transmitter and receiver must have the system gain at the carrier frequency of one-half of the response over the majority of the unsuppressed sideband. The important question is how is this overall filter response be distributed between the transmitter and the receiver, as it may have a significant impact on the cost of both.

The unanimous response of the committee was to recommend an unattenuated vestigial sideband be transmitted, allowing a simpler transmitter configuration as the final amplifier could be the modulated amplifier, instead of requiring a linear amplifier and low-lever modulation. The IF response in the receiver then puts the carrier at the one-half point in the passband curve. This also results in a less expensive receiver, one less IF amplifier stage required for the simplified response curve and better noise immunity for the next-lower adjacent channel.

The panel also considered sound channel pre-emphasis and the gamma curve of the transmitted video signal. The gamma curve prescription also takes into account apparent video noise immunity and the natural gain nonlinearities of the camera tube and the CRT in the receiver.

Panel 7: Picture Resolution, considered the number of scanning lines and the frame repetition rate of the image which were two of the most controversial parameters that were considered considering the past scanning wars. Also considered were the aspect ratio and direction of scanning. This panel had 22 members, the largest number of any panel.

Rectangular CRT picture tubes did not exist so various aspect ratios were considered, including the influence of the furniture the receiver was housed in. Motion pictures were presented with a 4:3 aspect ratio which was a powerful argument for a 4:3 aspect ratio and still using most of the area of a round CRT. In 1936, Prof. Allan Hazeltine conceived of adapting rectilinear scanning to the circular format of the CRT but this was discarded as a technical complication.

The selection of rectilinear scanning allowed the simplest scanning circuits, ample time for retrace and sync signals, and gave uniform illumination of the image. Horizontal scanning was more compatible with motion in most images, rather than vertical scanning.

The selection of a 60 Hz scanning rate was straight-forward as it locks to the local power line frequency. Anything other would require more power filtering to avoid picture crawl. Interlaced scanning was also easy to recommend as it reduces the video bandwidth requirement without introducing flicker of a lower scanning rate.

As most civil power supplies of the time were local and not synchronized over wide or national distances, a study was taken over seven large and small power stations in the U.S. of their average power line frequency and frequency stability. Most of them were capable of providing a minimal picture “hum” or bowing of the scanning.

It was desired that the vertical and horizontal resolution of the image be similar, which limits the number of scanning lines chosen for the given video bandwidth. In addition, as interlaced scanning is specified, the ratio of the horizontal sweep rate to one-half of the vertical sweep rate be the product of small odd integers. For a 30 Hz frame rate (60 Hz field rate), this limits the number of scanning lines that could be practical. So, 441 lines would have a horizontal scanning rate of 7 * 7 * 3 * 3 times the 30 Hz frame rate, or 13230 Hz, 525 lines would be 3 * 5 * 5 * 7 times 30 Hz, or 15750 Hz. Other schemes, such as 507 lines require higher integers such as 13, and the frequency dividers found in the sync generators would be more difficult to design.

The line choice of 495 would give the closest equality of the horizontal to vertical resolution for a 4 MHz video bandwidth and 525 would give the next closest equality; 441 lines was the worst.

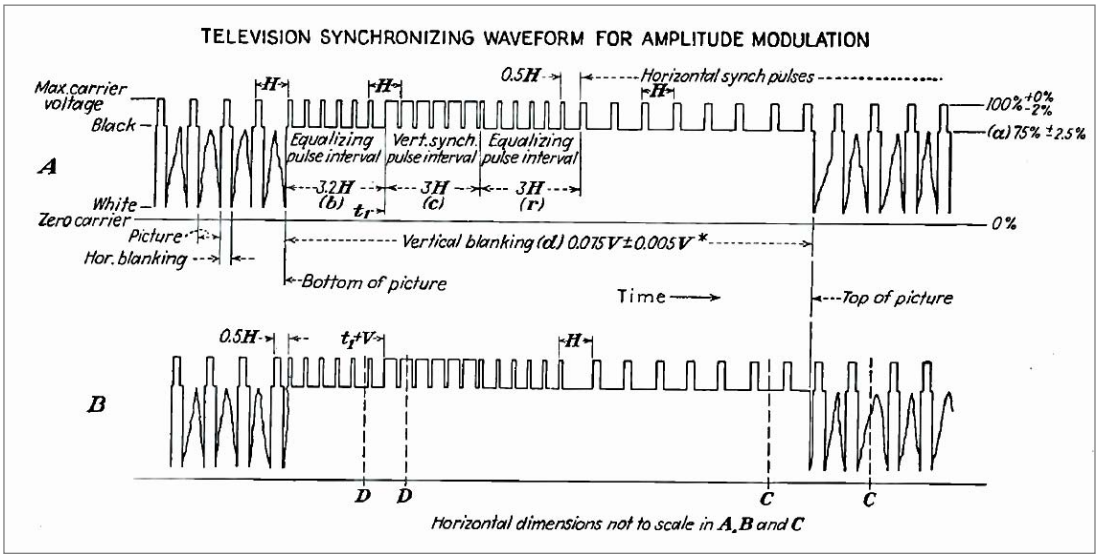
The committee chose 525 as the number of scanning lines.

Panel 8: Synchronization. This panel produced the longest and most technical part of the NTSC report.

Three approaches were considered: the previous RMA standard, a "simplified" version of the RMA sync waveform that omitted the equalizing pulses, and a contribution from Philco that uses a separate modulated 500 kHz pulse that is separately demodulated to provide the sync pulses.

The Philco team presented an extensive set of examples of the robustness of their system, followed by a comprehensive analysis of the RMA system, particularly its noise immunity.

The committee seemed to not come to a clear recommendation of the chosen sync system in their report. The FCC decided on the RMA sync standard.



Panel 9: Polarization of Radiated Signal. The choice of polarization influences propagation, noise pickup, antenna designs and fading. In summary, the committee rated the following factors in selecting polarization.

Factor	Which Polarization Preferred
Propagation	Neither
Multipath	Horizontal
Fading	Vertical
Variations in signal strength	Vertical
Noise	Horizontal
Signal-to-Noise	Horizontal
Transmitting Antenna	Horizontal
Receiving Antenna	Vertical

Actual experimental data using both polarizations under various conditions was presented to the committee.

The committee recommended horizontal polarization of the transmitted signal. They concluded that on the basis of signal intensity, the picture quality, and with indoor antennas, there was no particular advantage to either polarization. However, the committee found that multipath was more troublesome with vertical polarization transmitter and receiver antennas are simpler with horizontal polarization.

The Final Set of Recommendations to the FCC A summary of the approved standards follows:

6 MHz channel width, the carrier, 4.5 MHz between video and sound carriers
FM modulation of the sound carrier, 0.25 MHz below top of channel, at reduced power
Vestigial AM modulated video carrier, negative modulation, DC component preserved
525 lines, interlaced, 30 frames per second
3:4 picture aspect ratio, horizontal scanning, from left to right, top to bottom

Television broadcasting started again on 1 July 1941. WWII diminished the number of new stations. The U.S. War Board halted the production of radio and television for consumer use on 1 April 1942. The ban was lifted 1 October 1945. Postwar production of television receivers began in earnest in 1946.

Comparison to the BBC standards. The 405 BBC standard chose standards opposite of the U.S. NTSC standards in many cases.

Factor	NTSC	BBC
Video modulation	Negative	Positive
Sound Modulation	FM	AM
Transmitted polarization	Horizontal	Vertical
Sync equalizing pulses	Yes	No
Vestigial Sideband	Yes	No, yes later

What has happened since? Quite a lot.

Color Television and the Second NTSC Considerable interest in color TV existed before the war using spinning discs with colored gels. The color TV standards at the time were incompatible with the 441 and later the 525 line monochrome standards. CBS continued to develop their field-sequential color standards and was given permission to telecast in incompatible full color in October 1950. A year later, all production of color TVs was halted for the Korean war effort and the CBS color broadcasts came to an end.

RCA along with Hazeltine Corporation had developed a compatible color scheme that did not render the 22 million monochrome sets obsolete. The compatible NTSC standard was approved by the FCC in December 1953 and the first compatible color telecast was the Rose Bowl on 1 January 1954. See the author's article in the CHRS Journal Special Edition "All About Television."

Advanced Television Standards Committee (ATSC) 1.0 The analog television broadcasts ceased in the U.S. on 12 June 2009 after a couple of delays. It was replaced by the all-digital high-definition standard derived by a wide coalition of television manufacturers forming the Advanced Television Standards Committee and approved by the FCC. The new digital transmissions took place on the low and high VHF bands and on a reduced segment of the UHF television band.

Repack In 2016 the U.S. congress mandated that the FCC auction off much of the currently-used television spectrum for use primarily in mobile communications. Stations were reassigned frequencies below channel 37. In the San Francisco Bay area, most of the stations were assigned adjoining frequencies from channel 27 to channel 34 with a few outliers.

ATSC 3.0 NextGen TV Strap in and stay tuned. Your current digital television set will be obsolete and unable to receive the NextGen programming. ATSC 3.0 promises higher definition pictures and an internet-like connectivity. It's just getting started in the Bay Area.

Further reading: these books can be found in the CHRS library.

"Television Standards and Practice" NTSC, Donald Fink, Editor, 1943;

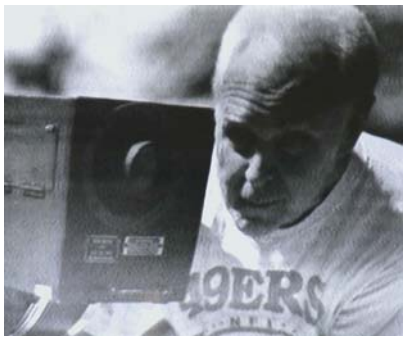
"Principles of Television Engineering", Donald Fink, 1940;

"The History of Television, 1880 to 1941", Albert Abramson, 1987;

"Tube" D. Fisher and M. Fisher, 1996;

The CHRS Journal Special Edition - Television: "All About Television", CHRS 2019.

Acknowledgement: Gilles Vrignaud, for his mentoring.



The Author shows one of his iconoscope cameras imaged through his home-brew iconoscope camera using the NTSC 525-line interlaced standard. ◊

A Tour of Sutro Tower

By Steve Kushman

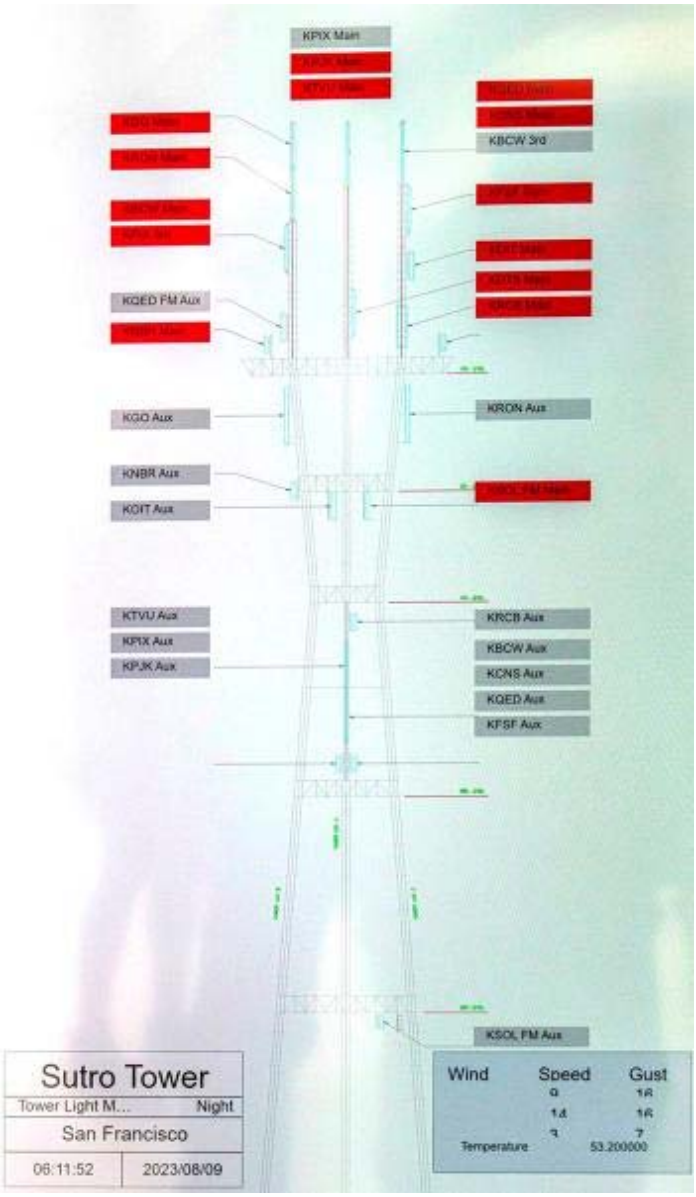
Last August, Raul Velez, CHRS Member and Vice President and COO of Sutro Tower, Inc, invited some of us to his day job. It was as usual, a foggy and cold morning on Mt. Sutro. The group included:

Rear left to right: Philip Monego, Jaime Arbona, Kent Leech, Steve Kushman, and Scott Robinson. Front left to right: Colin Snow, Denny Monticelli, Kyle Sund, Paul Bourbin, and John Staples.

We posed for the above photo in front of one of the wire tethered baskets that raise tower workers, materials and equipment up the 1,00 foot tower. Raul really devoted lots of his time for a great tour. We visited the transmitters of many of the TV and radio stations broadcasting from the tower. We also saw the huge back up generators and other tower support equipment. Colin Snow took several of the pictures.

The Sutro Tower is 977 feet tall and is perched on Mt. Sutro, which was named for Adolph Sutro, an early San Francisco pioneer. Sutro's grandson sold the land and mansion in 1948 to American Broadcasting Company for use as a transmitter site for newly formed KGO-TV. A 508 foot tower was built and on the air May 5, 1949.

To improve television reception in the Bay Area, construction of the current tower began in 1971 at a cost of $4 million. The original KGO tower and Sutro mansion were removed during construction. The Sutro Tower was completed in 1973.


KPIX Main
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KQED FM Aux
KGO Aux
KRON Aux
KNBR Aux
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KPIX Aux
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Vintage Television Enthusiasts Meet

By Richard Watts

The vintage television enthusiast group met at the CHRS museum on June 10th. The agenda of presentations lasted the entire day from 10am until 4pm with lunch provided. Presenters displayed exhibits for their talks. Items from attendees' collections were also displayed. Tom Albrecht was the host this year. The presentations were as follows:

About thirty attended the TV Meet.

TV Meet Host Tom Albrecht.

Mike Adams discusses the CHRS Journal Special Edition - Television.

Kevin Hempson talked of working for BBC then Ampex as an engineer and instructor starting in the 1960s in BBC transmitter operation/maintenance. He showed a MN6/501 waveform monitor with its "Slim Jim" vertical display. He later gave a second talk on why Gamma is necessary.

Ned Pendleton talked about pre-war, WWII, and early post-war TV broadcasting and networks and the expansion toward the Western states. His emphasis was on the Dumont network. He demonstrated his GE pre-war television receiver with matching radio for the audio portion.

Ron Code discussed his view of 20 collectible 1940s televisions.

John Staples demonstrated and gave an update on his TK-26 television camera project. He then gave a second talk on challenges and accomplishments in restoring the 30" B&W Dumont Royal Sovereign set. He gave detail on its design including the uncommon use of three I.F. circuits (video, sound, and sync).

Tom Albrecht compared and contrasted two combination sets in his collection; his smallest, an Airline circa 1952 with a 45 rpm phono, and his largest, a Dumont RA101 Westminster with a 78 rpm phono and a motorized tilt-away CRT that he demonstrated to the group in 2014.

Craig Musselman gave an overview of various amateur Ham TV formats.

Motorola 7" B&W circa 1949.

Farnsworth pre war TV cabinet.

Farnsworth pre war TV.

Sets On Display

Richard Dean brought the above Farnsworth and Andrea sets.

He also displayed his Visionette.; front and rear views are shown.

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Bay Area Radio Hall of Fame - Class of 2023

By David Jackson

PROGRAM HOST: Sylvia Chacon. Sylvia emerged from Hayward's Sunset High and Cal State Eastbay and jumped straight into radio – entertaining Bay Area listeners on KFRC, KSFO, KYA-FM, Star 101.3, and 98.1 The Breeze for four decades.

PROGRAM HOST: Jack Friday. One of the fabled "610 Men" from KFRC's greatest years as "The Big 610," Jack also rode Bay Area airwaves at KBLX, KOIT, KIOI, KYUU and KFRC's later Oldies iteration.

PROGRAM HOST: Kim Vestal, Although Kim currently helps the Bay Area get home each afternoon with her traffic reports on KCBS, she spent four decades as one of the Southbay's favorite voices at KARA and KBAY.

NEWSCASTER: Bob Butler. Not just one of the greatest news reporters in Bay Area radio history, Bob also served as president of the National Association of Black Journalists, a vice president of SAG-AFTRA, and as one of the foundational reporters with the Chauncey Bailey Project. He recently concluded his stellar forty-year career with KCBS.

SPORTSCASTER: Monte Moore. In 1968, the Oakland A's moved west from Kansas City taking up roots at the Coliseum and bringing with them their Oklahoma-born radio voice, Monte Moore. From having called the team at their worst in the Midwest, Monte helped bring the Swingin' A's to their Bay Area fans via a variety of stations during their greatest era, which included broadcasting three straight World Series victories.

SPECIALTY: Lloyd Lindsay Young. Hellooooo BARHOF! No matter where you lived, worked or played by the Bay, Lloyd Lindsay Young – the son of an equally legendary California weathercaster – let you know what to expect weather-wise on News/Talk KGO 810 during the station's run as San Francisco's top station. His distinctive style remains instantly recognizable to listeners from coast to coast.

MANAGEMENT: Chuck Tweedle: Under Chuck's guidance, KOIT became one of the most consistently popular stations in the Bay Area, helping it earn both Crystal and Marconi Awards from the National Association of Broadcasters in 2003, as well as designation as a Legendary Station by the Bay Area Radio Hall of Fame this year.

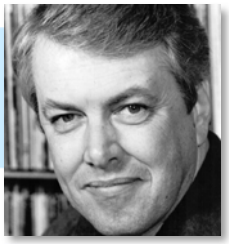
ENGINEERING: Mike Schweizer. Mike lived, worked and breathed radio until the very last of his days. By some estimations, he was involved with nearly every radio station in the Bay Area in one capacity or another, at one time or another. His love of radio, and the many hundreds of hours of broadcasts that he recorded – as well as memorabilia (including station T-shirts, signage and equipment) he saved from departing stations – helped build the foundation on which the Bay Area Radio Museum was built. Mike Schweizer passed away in June 2011.

LEGENDS AND PIONEERS

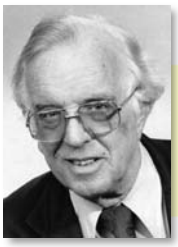
Larry Brownell. He came to San Francisco from Buffalo, NY, with three other Hall of Fame members, Gene Nelson, Tommy Saunders and Russ "The Moose" Syracuse, anchoring the news at Top 40 powerhouse 1260 KYA in the early 1960s continuing into the 1990s at KSFO/KYA-FM. Larry Brownell, born Larry Buller, passed August 2004.

Sonny Buxton. Seattle-born Sonny, who took his first step into radio in the 1950s, was a reporter and talk show host at KGO, but was truly in his element playing jazz in nightclubs and on the radio. A certified Hero of Jazz, an honor he earned from the Jazz Journalists Association in 2013 for his work behind the microphone at San Mateo's KCSM, Sonny has also been an Oakland Raider, an empresario, and an ambassador for the music that has been part of his life for eight decades.

Les Crane. Listeners to 1260 KYA in the prehistoric days of rock'n'roll in the early 1960s knew him as Johnny Raven, but a few years later he helped usher in the era of news/talk radio dominance at KGO, where – as Les Crane – he interviewed celebrities in the City's coolest nightclub, the hungry i. Les was also a network TV talk show host who went head-to-head with Johnny Carson; a creator of the popular "Mavis Beacon Teaches Typing" software program; a Grammy winner for his 1971 recording of the poem "Desiderata"; and husband of Tina Louise ("Ginger" from "Gilligan's Island"). Les Crane, born Lesley Stein, passed away in July 2008.



Stan Dunn. He arrived at Alameda's fabled KJAZ in 1967 and carried the station through to its end in 1994 as its morning man after which he fought valiantly to keep the Spirit of KJAZ alive online for jazz fans around the world. Stan also worked at the early incarnation of KFOG, as well as KRON-FM, KIOI, KKSF, KNBR and KCSM.



Bob Foster. In the days of yore, long before our internet age, there were newspaper columnists that covered radio and TV – what we nowadays call "media" – and there was none better than Bob Foster, whose daily column in the San Mateo Times included interviews, news, criticism and even gossip about what was happening on Bay Area airwaves for more than forty years.

John Hardy. Mississippi-born John Hardy studied stage and radio acting at Columbia College in Chicago, the city in which he got his start in broadcasting. After a stop in New Orleans, John came to the Bay Area in 1955, working at San Francisco R&B pioneer KSAN and, later, at Oakland's Boss Soul KDIA. He was also the first Black disc jockey at Top 40 KYA in the early 1970s, and was a popular personality at KSFO later in the decade. John Hardy passed away in July 2002.

Ron Reynolds. Described quite perfectly as "a master broadcaster," Ron Reynolds' voice was his calling card at KEWB, KNEW, KNBR and, in later years, at KCBS where he anchored newscasts and could be heard throughout the day on the station's imaging. Ron also held another rare distinction: he was among the small fraternity who could claim to have introduced The Beatles on stage, which he did at the Cow Palace during their penultimate 1965 tour. Ron Reynolds passed away in February 2022.

LEGENDARY STATION:
96.5 FM KOIT, SAN FRANCISCO

For five decades one of the Bay Area's most popular stations – one that even the boss agrees with! – KOIT receives recognition as our Legendary Station for 2023.

96.5 koit
Today's Hits & Yesterday's Favorites


Dave
Rajesh, Joe & Dave
Gilles
Philip & Scott
Betty holding Bella
Seth
Just a few of the CHRS Gang
Denny & John
Kyle, Heidi & Richard
Kent & Casey
Julie & Bella
Tom & Bella

Host - Terry McGovern

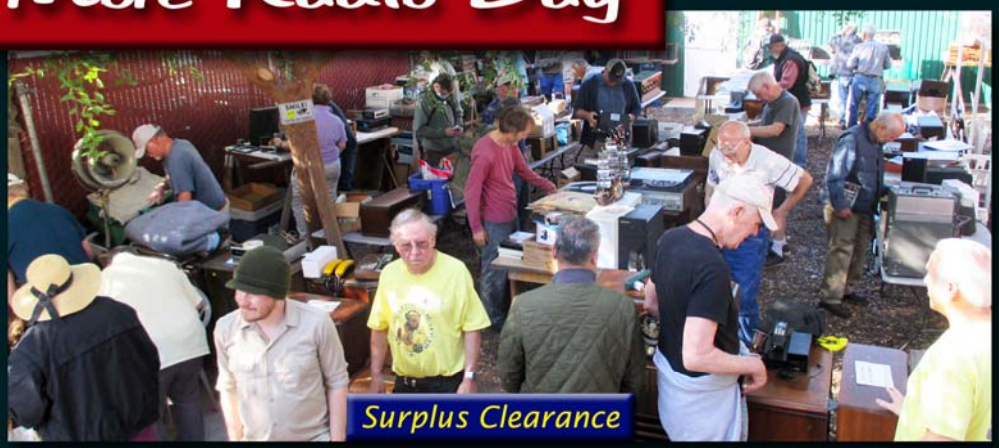
Lissa Kreisler & Ben Fong-Torres
Announce BARHOF Class of 2023

David Billeci
Volunteer of the Year

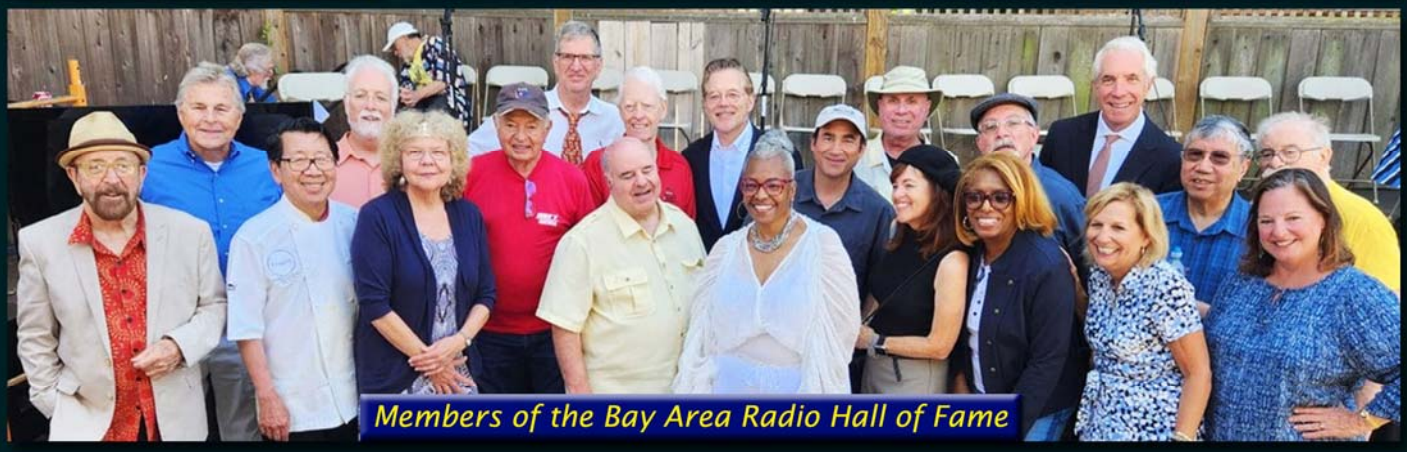
More Radio Day

Dressing for the Occasion

Checking out the Auction



Surplus Clearance



Members of the Bay Area Radio Hall of Fame