K9YA Telegraph

Robert F. Heytow Memorial Radio Club

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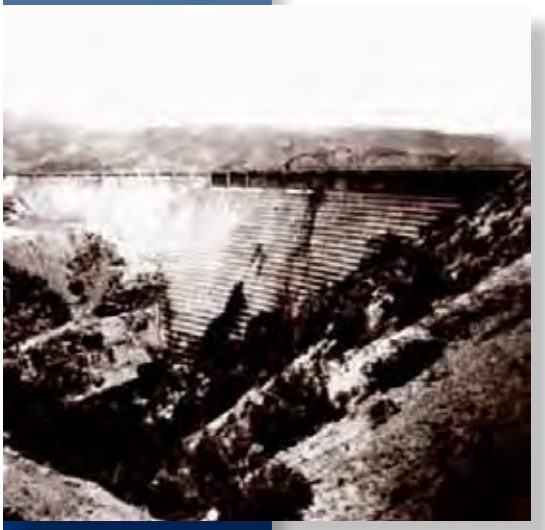

St. Francis Dam Disaster

6BYQ and 6ALX, Public Service

Philip Cala-Lazar, K9PL

Thumbing through the introductory chapter of the 1940 edition of *The Radio Amateur's Handbook* in a section devoted to public service, I came across a reference to some California hams who provided emergency communications for the 1928 St. Francis Dam disaster. This entry piqued my curiosity; I was not familiar with the St. Francis Dam nor amateurs' role in whatever happened there in 1928.

After some research I read the St. Francis Dam disaster of 1928 incurred the second largest accidental loss of life (est. 500-600) in California history–only the San Francisco earthquake of 1906 exceeded (est. 3,000) that number. It took some more digging to uncover the names and calls of the hams involved in the emergency communications.

"…precariously situated…"

A Grand Scheme

Designed by William Mulholland (1855-1935) celebrated engineer and head of the Los Angeles Department of Water and Power, the concrete gravity-arch-type dam was located in San Francisquito Canyon 45 miles north of Los Angeles. It was constructed in the farmland of the Santa Clarita Valley as part of a grand scheme supplying water to the burgeoning metropolis of Los Angeles.

Unknown at the time, today geologists realize the dam was precariously situated on an earthquake fault line and supported on one side by rock (*tufa*) "…too weak to sustain the weight of the dam…" and the other supporting side, the site of an ancient landslide. Built to supplement the existing Los Angeles Aqueduct, by restraining San Francisquito Creek and impounding it in San Francisquito Canyon, and taking two years to construct, it was completed on May 4, 1926.

The St. Francis dam was an impressive sight: "205 ft-high" and "…arched on a radius of 500 feet to the upstream face at the top." "The top thickness of the dam was 16 ft., …at the maximum section the base thickness was 175 ft. The length of the main mass was about 700 ft." The 38,000 acre-feet and twelve billion gallons of water it held was enough to "meet the needs of the city of Los Angeles for more than two months." This massive head of water powered two hydroelectric plants that supplied electricity to Los Angeles and to power an irrigation system for local farms and orchards.

Leaks Detected

The not quite two-year-old dam, now filled to capacity, had been springing leaks for several weeks prior to its utter collapse on 11:57 pm, March 12, 1928. In fact, Mulholland personally inspected the site earlier that day and found nothing amiss. With its impediment suddenly removed, 12 billion gallons of water surged out in an estimated 100-foot high wall moving downstream at between 15-17 mph. Now the mountain of water,

Continued - St. Francis on Page 7

Inside This Issue…

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Software Defined Radio

Paul W. Ross, W3FIS

FlexRadio Systems®
Flex-3000 SDR

The Holy Grail of radio amateurs and short wave listeners has been a "DC to Daylight" system. Everybody is looking for one great gadget that would cover from VLF through microwaves. Yep, great to have. All those little boxes, or not so little boxes in my shack would be replaced with a single unit. Well, I do admit that I've come fairly close with a Yaesu FT-817ND transceiver that covers the ham bands from 160 meters through 70 centimeters, with the exception of the 220 MHz band. I recently got a receiver (Yaesu VR-200) that claims to receive from 100 kHz through 1.2 GHz. Good luck finding a single antenna that will cover all these ranges! That is a story for another time, but I think I am trying to outwit the laws of physics there.

The internals of the design of such receivers and the stuff to go with them can get a trifle complex. By the time I was done fooling around with my current rigs, I had my Acer netbook tied through a SignaLink USB interface to the FT-817ND, and was looking into a computer interface for the VR-500. My antenna situation is a varied bunch of whips, wires and tuners.

"DC to Daylight"

There has to be a better way to skin this proverbial cat from the receiver and transmitter standpoint. The next reasonable move from conventional receiver designs, which I have discussed in my previous articles, is what is known as "Software Defined Radio," or simply SDR. The motivation for the development of SDR came out of a desire in the U.S. military to replace a number of radio systems with a single system, in the interest of costs, logistics and training considerations.

So, how does SDR work? The basic problem in designing a wide range receiver is to bludgeon the incoming RF signal, over a wide range of values, into some sort of detector or processing scheme to extract the pertinent information. Going the other way, we need to generate the appropriate waveforms, and render this into the desired output RF signal. Our previous discussions of "zero IF," or direct conversion receivers is particularly germane to our current discussion.

If you remember, in the direct conversion receivers, we took the incoming signal and heterodyned it with the same frequency, or one very close to it. The results were the sum, which we discarded with some simple filtering, and the difference, in the form of an audio tone, which we simply amplified. The simplest design of a direct conversion transceiver is the Pixie II or Tiny Tornado. This basic idea of direct conversion nicely handles any SSB or CW signal, and if we can maintain sufficient frequency stability, we can recover an AM signal with "Homodyne" detection.

For better "detection," the quadrature-sampling detector is better. The quadrature-sampling detector will nicely eliminate the spurious reception of image signals the other side of zero beat, which plagued our Pixie II. This idea is the modern equivalent of the phasing type exciter developed many years ago for generation of SSB signals. It is easier to develop a phasing system than to create a filter, though the crystal filters in such designs as the Wilderness Radio NorCal 40A and SST designs work remarkably well.

Now that we have generated a received signal in the audio range, enter the modern computer sound card. These can usually handle from 20 Hz to 20 kHz without any difficulty. This means that we can look at any 20 kHz section of the incoming signal. With a wide-range local oscillator for converting our incoming signal into the audio range, this means that there is no difficulty receiving almost "DC to Daylight."

Now, what about the signal processing after we get the desired incoming signal through our sound card? We can apply a technique known as a Fast Fourier Transform, or FFT. This mathematical process, which

Continued - Software Defined Radio Page 8

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The Elmer Letters

The Elmering Relationship of a Mid-1950s Novice: Part I

Cliff Cheng, Ph.D., AC6C

I am grateful to the editors of the *K9YA Telegraph* for allowing me to publish this important historical documentation in their newsletter. Five years ago I embarked on a project to save the history of the Novice Era (1951-2000) in American amateur radio. I launched the Novice Historical Society and its Website, www.Novicehistory.org, as a place where hams who started as Novices could tell their Novice story and share photos. So far, about 275 hams have contributed stories and pictures to our Website. Some of these hams are very well known in our hobby and others just like you and I.

Three years ago the popularity of the Website led to the Novice History Series as a regular column in the *QCWA Journal*. In that series, as much as possible, I relate the story of the Novice Era in chronological order. As it becomes available, new historical material is added to our Website. This series of *K9YA Telegraph* articles depicts, through ham radio history, the importance of the elmering relationship.

It is very fitting the *K9YA Telegraph* publish the elmering relationship letters featured in this series as this is the home of Rod Newkirk, W9BRD, who coined the term "elmer."

The letters we share with you are between a new ham, Dick Morgan, K6RAH, who, as a Novice in 1956, was KN6RAH and his elmer, Howard French, K6EDA (SK). The Novice Era was the era of the genuine elmer. The Novice license was designed as a learner's permit, it invited traditional elmering. Most would-be hams could not learn the theory, acquire code and get on the air without the knowledge, experience, guidance, friendship and encouragement of an elmer. Today, traditional elmers are not needed to help new hams in an era of *easy ham exams in which almost anyone off the street can be licensed in less than a day.*

The Novice license was systematically dismantled: the distinctive Novice callsign taken away; made a five-year, later a 10-year renewable license; power limit increased; and question pools published. With the advent of the code-free Technician license in 1991, the Novice was of little value to most would-be hams. The Tech license enabled them to use voice privileges without first learning code. Since Tech licenses are so easy to obtain and confer voice privileges many new hams feel empowered to do as they please. Some Techs resent even the gentlest suggestions pertaining to good operating procedure. *Even the most knowledgeable elmer cannot be successful unless the would-be ham is willing to learn*. Having the title "Novice" meant one had a lot to learn. There are Techs who believe their "Technician" license means they are real Radio Electronics Technicians. Unfortunately, today's elmering in an age of "drive-through ham exams" as retired FCC Wireless Bureau chief and past QCWA president John Johnson, W3BE, calls it, tends to address issues like which HT to get, how to program it and what are the frequencies and PLs of the local repeaters? There is almost no interest in how does it work and how can I build and fix things?

Dick Morgan, K6RAH

"drive-through ham exams"

In June 2010, I posted a request to the Ham Radio History Yahoo Group asking them to describe the characteristics of an elmer. Here is a reply by Ron Kienzle, KZ7P, that captures the elmering relationship of the early Novice Era:

Your question brought to mind the elmers I had in the mid-fifties when I was 11 and 12. Their most wonderful qualities were:

- Patience (much patience—remember, I was just a kid)
- Honesty—when they didn't know something, they researched it
- Enthusiasm—they LOVED the hobby and were excited to gain converts
- Humility—they never assumed superiority over me or anyone else
- Concerned—they were delighted to see me make progress. These men must be saints by now. I was a

CONTINUED - ELMER LETTERS PAGE 8

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Volume 7, Issue 11

Morse on the Road

James Wades, WB8SIW

A dial-up set in use at a "Holiday Inn Express." The old Radio Shack DCM-6 modem contains the necessary custom interface circuit and provides the loop supply voltage to operate the telegraph instruments.

In January 2008, I accepted a position with a well known German manufacturer of railroad signal and train control apparatus in an effort to best the "great recession" occurring in Michigan. The move turned out to be a good one at the time, and while I enjoy the work immensely, the position has its disadvantages, including a customer base that encompasses all of North America. This results in a tremendous amount of business travel. Today, when people ask me where I live, I respond "Holiday Inn Express." This is actually quite true, as I see home only a weekend or two a month.

On several occasions, I have tried using ham radio from a hotel room. The results are always mixed. Today, hotels are filled with a myriad of devices, which all likely violate Part 15 regulations. Big screen televisions, computer networking equipment, PCs, and so forth, all contribute to a significant RF noise floor. Additionally, the architecture of many modern hotels is problematic. Windows don't open, concrete construction methods shield RF, and so forth. What's a ham to do when he lives on the road?

"Here's how it works."

Fortunately, I had access to an excellent alternative. Having a background in American Morse code and railroad telegraphy, I assembled a small portable telegraph set that allows me to connect to other telegraph operators throughout the U.S. and Canada either via Internet or dial-tone telephone line. Instead of watching television or surfing the Web every night, one can hit the exercise room, take a shower, and then sit down for an hour of pleasant conversation using Morse. Here's how it works:

Members of the Morse Telegraph Club (www.morsetelegraphclub.org) maintain two dial-up telegraph hubs and an Internet-based server designed to provide nationwide telegraph service to club members. Two telegraph hubs are available. The "KB" hub located in Buchanan, Michigan serves MTC members primarily in the U.S. The "HN" hub in Toronto serves members primarily in Canada. In order to access these hubs, all one needs is a simple Bell-103 type modem, a simple interface circuit, and a basic Morse Telegraph Set consisting of a key and sounder.

The process of connecting is simple. One dials the hub from a remote location. The auto-answer frame on the hub detects the ringing pulse and automatically picks up the incoming line, connecting it to a bank of interconnected modems. Meanwhile, associated ancillary devices, such as the local loop supplies and repeater are activated automatically. At the remote site, the operator simply presses the "connect" button on his modem and hangs up the phone. A telegraph carrier connection is now established, allowing him to "chat" with other operators throughout the U.S. and Canada using standard telegraph instruments.

The telegraph instruments behave just as they would on a "real" telegraph circuit. One must keep the key closed when not engaged in communications or when receiving. Likewise, one opens the key to transmit in accordance with standard North American land-line telegraph practices.

As mentioned earlier, the "KB" hub serving the United States is interfaced with an Internet-based system called "Morse KOB" (www.morsekob.org) via an authentic Bell System/AT&T Athearn Repeater from the 1920s. On one side of the repeater one finds a current loop from the KB dial-up hub. On the other side of the repeater, one finds a current loop from the Internet KOB network. The repeater provides a bi-directional interface between the two independent systems, allowing operators on either side to "break" the circuit.

Individuals with Internet access can also directly access the Morse KOB network, designed by MTC member Les Kerr (N7RX). One simply establishes a

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basic current loop for his key and sounder. This current loop is then interfaced with the serial port of a computer via a simple interface circuit. The "Morse KOB" software does the rest. Morse KOB is extremely versatile. It offers numerous "wires" or channels for individual telegraphers to use. Continuous national news and weather bulletins are also transmitted in real time to provide code practice for MTC members.

Like its dial-up hub counterparts, telegraph instruments interfaced with the Morse KOB network behave just as they would in a normal land-line configuration. If the computer were out-of-sight, an old-time telegrapher could not detect the difference between this modern system and a traditional circuit.

There is only one small "catch" for hams wishing to use these MTC sponsored systems. MTC was established by retired railroad and commercial telegraphers for the purpose of promoting the history and traditions of Morse Telegraphy. Therefore, those one encounters on these systems will likely be using the American Morse code.

For those unfamiliar with telegraph history, the American Morse code is the original Morse code as developed by Morse and Vail. The code currently used by radio amateurs is the "Continental code," which emerged at the time of the development of the first undersea cable. The Continental code was eventually adopted as the world-wide standard for wire-line telegraphy and, later, wireless telegraphy. However, because the telegraph industry was already so well established in the North America, the original American Morse code remained the standard for all types of "land-line" telegraphy applications. The railroads, brokerage companies, boards of trade, pipeline companies, AT&T, and even sports play-by-play activities all relied extensively on land-line telegraphy and the American Morse code well into the post World War Two era. As a matter of fact, the last railroad telegraph circuits in the U.S. remained in service until the 1980s!

Fortunately, learning American Morse and developing the ability to copy on a sounder is not difficult. A proficient radiotelegraph operator can learn "the mother tongue" in a matter of a few weeks with regular practice. Approximately 10 of the letters and nine of the numbers are different in addition to the variations in punctuation.

If you are looking for a fun way to pass a few nights on the road in a hotel room, or if you are looking for a new operating challenge, the Morse Telegraph Club and its "land-line" telegraph network may be right up your alley. It's a great way to travel!

Membership in the Morse Telegraph Club is open to any individual with an interest in the history and traditions of telegraphy. In addition to former commercial and railroad telegraphers, many radio amateurs are also active in the organization. ■

The Morse KOB Set depicted here is arranged for telegraph demonstrations at radio clubs, steam train excursions, and the like. It connects directly to the serial port of a laptop computer. Loop supply current is provided by a "wall-wart" AC adapter. Visible is a Bunnell Box Relay, a Western Electric Sounder and Resonator, and a Jack Box, which allows one to select external connected instruments. The serial interface circuit, fuse, and power switch are hidden inside the jack box.

Upon Its Friends...

The Wake Depends Help!
Upon Its Friends Help!

That's the way Arch Ward, writer of the Chicago Daily Tribune's long-running column, "In the Wake of the News" solicited items quaint, kitschy and off-kilter that made it a perennial good read.

Well…
The *Telegraph* Also Depends Help!
Upon Its Friends Help!

At the *K9YA Telegraph*, we too, would like our friends to contribute articles not only quaint, kitschy and off-kilter, but also fun, informative and brimming with amateur radio goodness.

No doubt you have a story or two to share with us: your ham radio beginnings, club doings, on- and off-air experiences, memorable operators, construction articles, technical discussions, gear you'd like to review, historical personages and events, skills you've mastered or a collection to brag about. Just about anything in the wide, wide world of amateur radio is grist for our mill.

First time author jitters? The *Telegraph*'s staff will edit your manuscript. The important thing is to share your story with hams in more than 100 countries—that's more than a DXCC's worth! A photograph or two to accompany your article significantly enhances content.

For more information please visit:

http://k9ya.org/write_for_us.htm

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Two Iambic to Single Lever Mods

Bencher and Elecraft Paddles

Paul Signorelli, WØRW

Elecraft KX1
Paddle Cover

If you have never perfected the "squeeze" iambic Morse sending procedure, you might have more success with a single lever paddle. I learned Morse on a Vibroplex© bug and never learned iambic operation. So I converted my iambic Bencher to single lever operation. The modification is simple and reversible. I can send better and faster on this single lever system.

All you need is a 1/4-watt resistor lead (0.03 inches in diameter) and a piece of hard sleeving/tubing (0.02 inches long). You place the hard tubing between the paddles and run the resistor lead through the rivet holes to hold the tubing in place. This maintains the spacing and turns the iambic Bencher into a single lever paddle. You may want to loosen the rear spring tension for final adjustments, bend and trim the resistor lead.

The example shown in the picture uses a white spacer.

SLP Mod For The Elecraft KXPD1

If you prefer the single lever paddle (SLP) operation for sending Morse, here is the solution for the KX1. The KX1 front paddle is designed for iambic operation only. This modification will convert it to SLP operation by adding an exoskeleton to the paddle,

The modification is simple.

Remove the paddle's two rubber boots.

Add an old 9-volt NiCad rectangular battery case over the paddles. The GE NiCad 9-volt battery case is made from one piece of plastic.

Add a ground lug to the top left screw on the paddle frame and epoxy a hoop to the battery case; I used an old Exacto blade.

This allows the plastic battery case to float on top of the old paddle contacts.

Shim, using thin cardboard inside the battery case to achieve correct spacing.

The exoskeleton battery case prevents any squeezing of the paddles.

It looks pretty good after applying some black paint. ■

Ham Quips

DICK SYLVAN, W9CBT

THE "KEY" TO THE CITY!

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Continued - St. Francis from Page 1

mixed with huge chunks of dam debris, roared down San Francisquito Canyon knocking flat everything in its path. First was the dam keeper's cabin drowning him and his family and then on to the power station and the loss of many lives. Reaching the Santa Clara River bed the water thundered west into communities and migrant workers' encampments and through the town of Santa Paula, finally draining into the Pacific Ocean at Montalvo.

Later that morning a lookout aboard a U.S. Navy cruiser heading for Long Beach, "between Oxnard and Ventura," spotted a massive amount of debris and silt in the water. The crew was unaware of the morning's events and so was the radio operator queried at Long Beach Naval Station–that was soon to change.

6BYQ and 6ALX

The flood knocked out all wired communications–telephone and telegraph–into and out of the downstream town of Santa Paula. No matter, it was essential that Red Cross headquarters in San Francisco be notified. Emergency supplies and medical personnel were needed ASAP. Eyes settled on seventeen-year-old Charles Primmer, 6BYQ, son of local fire chief Sam Primmer. Charles, or C.A. as a May 1928 *QST* article referred to him, was pressed to do the job. Young Primmer was not sure he was up to the task, but his civic duty prevailed and he was soon seated before his gear, and there he would remain for the next four days, apart from rest breaks.

The *QST* article, "Santa Paula Flood Work," by J. Walter Frates, 6CZR, and Don C. Wallace, 6AM, was placed on F.E. Handy's, 1BDI, "The Communications Department" page. The authors attribute to Charles and a San Francisco amateur, W.A. Hammond, 6ALX, the "speed and dispatch" of the Red Cross's "supplies and assistance." Primmer's CQ was answered by Hammond ("veteran Sixth District radio instructor"), while at the Roosevelt High School radio station, 6AUT, in Oakland. Primmer asked if Hammond knew of the St. Francis disaster. Hammond answered, "No." 6BYQ did not return for some time until he was again heard by Hammond, Primmer now calling "SOS." Answering his distress call and copying the vital information, Hammond phoned Red Cross headquarters and soon received confirmation that "a trainload of workers and supplies would be on the way in a short time."

> *"…both men were* real *operators."*

Remaining at his post, Primmer later relayed news of the flood to amateurs in Whittier and Los Angeles. The LA ham forwarded the copy to local newspapers, as did Hammond for the San Francisco papers. It was all performed quickly as the authors state, "because both men were *real* operators." (Italics in the original.)

Primmer was at the key from 4:30 am to 5:00 pm when he was relieved for an hour by 6DCJ. 6BYQ then continued at the key until 10:30 pm. Skipping the next three days of school he persevered in handling a total of 50 "important" messages and many personal radiograms. Primmer's 40-meter transmitter was "a 7½ watter with 350 volts of 'B'." Other hams involved were LeRoy Potter, 6AKW, of Los Angeles and 6BLH.

St. Francis Dam After Disaster

Praise

Kudos from authors Frates and Wallace, "This whole thing was just another exhibition of the true amateur spirit, and his willingness to let everything slide when there is a possibility of his being of service in an emergency."

In addition to Charles and his impromptu emergency net members, others in Santa Paula labored to save lives. In the minutes before the flood, while telephone service within the town remained intact, telephone operators called residents to warn them of the oncoming inundation. C.A.'s father, Fire Chief Sam Primmer, rode his motorcycle through the town "calling to sleeping residents to abandon their homes and head for higher ground."

Following its collapse several theories were promulgated to explain the dam's failure, including earthquake and dynamiting by saboteurs, but a coroner's jury found William Mulholland wholly responsible, effectively ending a long and history-making career.

For a highly fictionalized version of the bigger story see the 1974 film *Chinatown*.

Continued - St. Francis on Page 8

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Volume 7, Issue 11

Continued - St. Francis from Page 7

References

Chicago Daily Tribune

Popular Science, March 1964

QST, May 1928

Time, October 29, 1928

Advanced Dam Engineering for Design, Construction and Rehabilitation, ed. Robert B. Jansen, Van Nostrand Reinhold, 1988, ISBN 0-442-24397-9

The Radio Amateur's Handbook, American Radio Relay League, West Hartford, Conn., 1939

Beyond Chinatown, Steven, P. Erie, Stanford University Press, Stanford, Calif., 2006, ISBN 0-8047-5139-0

Encyclopedia of Disasters: Environmental Catastrophes and Human, Vol.1, Angus M. Gunn, Greenwood Press, Westport, Conn., 2008, ISBN-13: 978-0-313-34003-1

Material Dreams: Southern California Through the 1920s, Kevin Starr, Oxford University Press, 1990, ISBN 0-19-504487-8

Rivers in the Desert, Margaret Leslie Davis, First e-reads publication, 1999, ISBN 1-58586-137-5

St. Francis Dam Disaster, John Nichols, Arcadia Publishing, Charleston, S.C., 2004, ISBN 0-7385-2079-9

When Science Goes Wrong, Simon LaVey, Penguin Group, NYC, 2008, ISBN 978-0-452-28932-1

Online documentary: **http://www.scvtv.com/html/legacyfrankrockgv.html**

Continued - Elmer Letters from Page 3

brash, know-it-all kid but they stuck by me for years and years. Alas, they are all silent keys now, but not forgotten.

Notice the subtext in Ron's comments. There was deep appreciation and respect for the elmer and ham radio.

In what follows we share one ham's traditional elmering relationship during the early Novice Era. We see a teachable Novice, eager to learn and appreciative of any help offered him. The would-be Novice was respectful and grateful to his/her elmer and for ham radio. Fourteen-year-old Dick Morgan was a shortwave listener in 1955. He discovered a ham named Howard French, K6EDA, about a mile from his home in San Diego, California; Howard elmered Dick in a traditional elmering relationship. Dick was the student and Howard the teacher. ■

Continued - Software Defined Radio from Page 2

we apply to our digital data stream, allows the digital simulation of any type of filter—wide or narrow band, or whatever. We can use the appropriate software to go from there for a SSB signal, CW, BPSK-31 or any mode of our choice. Clearly, this is a remarkably flexible system and does not require a different detection system for every modulation mode.

Many years ago, I refurbished a war surplus BC-348, adding a narrow-band FM detector to the system, in addition to its BFO, used for CW and SSB reception. I recall thinking that doing something with RTTY might be fun, but the detector system would have to be "outboard," due to space limitations in the BC-348, among other things.

Coming back the other way, to do transmission, we use the sound card to synthesize the desired waveform, then use this sound signal to modulate our SSB exciter, and off to the antenna with it. The net result is that our computer does the majority of the heavy lifting. If we want to do something different in respect to a modulation scheme, then all we have to do is alter the software on the computer side of the house.

Typical amateur software QRP transceivers from FlexRadio, or the receivers available from Ten-Tec are becoming attractively priced. The receiver performance is directly related to the dynamic range of the analog to digital converters in the sound card. One strategy is to include a high-performance sound card as part of the receiver or transceiver.

As time goes on, we should see more equipment increasingly available at even more attractive prices. There is an up and coming commercial interest in SDR for international shortwave broadcasts. At the moment, standards are in flux, but it is a technology well worth watching. ■

From *QST* "Strays," May 1928

The meaning of "transceiver," used in the March 1928 issue is defined as "a combined transmitter-receiver." The term is a trade name of the Chicago Radio Laboratory.

From *QST*, June 1928

News item announcing the resignation of Lawrence A. Jones, 1GO, from his position as assistant to the Communications Manager at the ARRL. Jones left the League to join the crew of the non-magnetic yacht *Carnegie* as radio observer and operator. That cruise of the *Carnegie* was the subject of the lead article in the May 2010 issue of the *K9YA Telegraph*.

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