K9YA Telegraph

Robert F. Heytow Memorial Radio Club

Volume 3, Issue 8, August 2006

I'm No McElroy

Two Code Learning Blasts From the Past

Philip Cala-Lazar, K9PL

The McElroy is Ted R. McElroy, world's speed champion telegrapher (he clinched the record by copying a five-minute run at 75.2-wpm in 1939) and, later, telegraphic apparatus entrepreneur and purveyor of an eponymous code course in the 1940s and 50s. My top code speed does not begin to approach McElroy's, but I enjoy Morse daily and feel competent at most speeds encountered on the ham bands. Plus, I've been doing it for nearly 30 years, so I know what worked for me at the beginning.

Just the Sounds, Ma'am...

I used a number of Morse learning aids to attain the 13-wpm needed for the General Class license in 1976.

Starting from NO-wpm, I purchased the advanced course version (3- to 20-wpm) of "The Rider Sound-n-Sight code course" copyright April 1959. A boxed set, the instruction booklet accompanying three 33 1/3 RPM LP records claims the course ". . . makes use of certain psychological principles discovered by Professors Fred S. Keller at Columbia and B.F. Skinner at Harvard."

This course gets it wrong from the get-go by requiring the student to listen to the 26 letters of the alphabet and write down the dits and dahs rather than learning the sound of the letters directly without any intervening, barriers to learning, steps.

Sound-n-Sight continues to compound code acquisition problems with the included set of flash cards. The cards have the code elements on one side and a letter or number on the other. The student is instructed to look at the printed elements, guess the character and then flip the card to see if the guess was correct. Another misstep: as we use it, Morse code is an aural, not a visual medium. We should learn it that way from day one.

> *"It gets even more cumbersome..."*

Sams Says...

Another course I obtained was The Howard W. Sams & Co., Inc.'s "International Code Training System" (4- to 22-wpm) which included one tape cassette (despite which the instructions direct: ". . . turn on your record player. . .") and an instruction booklet copyright 1963 and 1971. The International Code Training System seems to go out of its way to confound learning. Its "System" uses flow charts to identify Morse characters. Hear a dit, then trace on the flow chart the next code element. Is it a dah? Then it's the letter "A." If another dit, it's the letter "I."

It gets even more cumbersome, as you can imagine, for letters comprising more than two elements.

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CW Rogues' Field Day 2006

With Apologies to Edward Bulwer-Lytton

Philip, K9PL; Mike, N9BOR; Steve, N9WAT; and Chuck, NIØC

Chuck, NIØC, Pulling Weak Stations Out of Thin Air

K9PL

"It was a dark and stormy night…" and morning as Field Day 2006 passed into the record books. It was 30 hours of heat and cold, torrential "frog stranglers," thunderheads and clear skies, humid and dry meteorological events populated by myriad crawlies, raccoons, feral cats and a quizzical blue jay who, for an instant, lit on one CW operator's hand. It was 24 hours of eyes fixed on the laptop screen with fingers poised to log and provide fills via Vibroplex Code Warrior. It was an hour or two of sleep snatched from impossible postures followed by the brushing of teeth in a verdant meadow; it was foregoing showers and following a calorie dense diet of dried fruits, nuts, seeds, potato chips and cheese popcorn—all those quickie comestibles that promise egregious intestinal sequela. And, overall, the incessant drone of the generator, in other words, it was your typical Field Day.

"…egregious intestinal sequela."

N9BOR

Last year, we felt we had an excellent Field Day setup. Unfortunately, our effort was cut short by six hours due to a lightning storm. For Field Day 2006, we didn't have to do much planning or undertake construction projects. If we could operate the full 24 hours, we knew we would have an effective station.

As I explained our setup to visitors, I realized how simple and antiquated our station was. For an antenna, we used a 500-foot spool of house wire purchased from the local home center. For a radio, we used a 15-year-old Kenwood TS-850SAT. For logging we used an old PII laptop running DOS. Somewhat by accident, we followed the K.I.S.S. principle (Keep it Simple, Stupid) and created a simple, reliable and effective portable amateur radio station.

Perhaps this is an over-simplification, because over the last five years we have continued to improve our station and make our life easier in the process. I like to think we have refined our Field Day setup, rather than continually redesigning it. I enjoy knowing under emergency conditions—when all else fails—it is skill, not equipment that gets the job done.

Our visitors listened intently to the myriad of Morse code signals through an extra set of headphones. The deputy sheriff commented she recognized the sounds of Morse code from the station I.D. on her police radio. Listening to on-air Morse code elicited many questions and smiles.

Although some are quick to point out Field Day is not a contest, we enjoy that aspect while still accomplishing most of the other stated goals. If Field Day isn't a contest, why are the scores published—in descending order—no less. When all else fails, I would prefer a well-practiced team capable of relaying traffic quickly and accurately.

This year, we were only able to operate 22 ½ hours. We had to take two lightning storm breaks totaling one and a half hours. Still, we managed 1,214 QSOs, which is our personal best. Go Rogues!

Art, WB9JKZ/W9BSA, Taking a Well Deserved Break

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N9WAT

I awoke to a fine mist spraying my face and the drone of steady rain on the tent ceiling—it must be Field Day. In the interest of a quick take down Sunday, we neglected to put the heavy canvas fly on our large, vintage Eureka cabin tent; the structure I refer to as our "napping" tent.

Field Day this year seemed easier than ever. Partly because all the gear was stored away properly in the garage and hadn't been touched all year— all I needed to do was crosscheck it against the list and load it in the truck—and partly because I omitted redundant items. So, instead of three or four of everything, this year we had only two, the primary and its backup.

Setup Saturday morning was also a breeze after some head scratching trying to remember how we moved the maypole antenna's elements over the tower's guy lines. The addition of the K9PL screen room for operations allowed us to operate in bug-free bliss and, while we had the mosquito fogger locked and loaded, we did not feel it necessary to wage chemical warfare this year.

Thunderstorm activity caused us to stop operations twice, but for the most part we operated through steady light to medium showers. Mercifully, the rain stopped by morning allowing us to dry off the tarps and tents before packing away. Take down went smoothly except for some unruly nylon twine we used to terminate some antenna elements.

On the ride home I thought I fared well not picking up any wood ticks or severe bites crawling through weeds and climbing trees to tie off, put up and take down antenna elements when I felt something biting my neck. An earwig had apparently hitched a ride on my collar or shirt pocket and decided it was time to strike—a small price to pay for a fun weekend. I jettisoned him on the toll road and resumed thinking about keeping my 100-foot roll of RG8 from kinking up on us.

Phil, K9PL, Running Stations, while Deputy Knope Listens to Morse Code

NIØC

Since I was driving by myself from St. Louis to northern Illinois, my wife advised me to get a book on tape from the library, to help me pass the time and keep alert on the road. I chose Caroline Alexander's *The Bounty: The true story of the mutiny on the bounty*. So, on the way to an amateur radio Field Day event in 2006, I listened to this fascinating account of sailing the South Pacific in the late eighteenth century. Naturally, I thought of the two hams on Pitcairn (Brian Young and Meralda Warren, descendants of original mutineers) I had contacted in the course of Dx'ing. One of my most treasured QSL cards is from Meralda, VR6MW, for our 1993 QSO—a card celebrating women's suffrage on Pitcairn dating back to their original constitution of 1833. I recalled reading accounts in *QST* and *National Geographic* of how amateur radio became a vital communications link for Pitcairn beginning in the 1930's.

> *"…for fun, for camaraderie and competition…"*

So here I was, just past the summer solstice, on my way to help set up and operate a ham station for fun, for camaraderie and competition, and to help demonstrate that amateur radio is still a useful communications link requiring very little in the way of infrastructure. The summer solstice, with its attendant heat and thunderstorms and generally poor propagation, represents something of a worst-case testing scenario for HF communications effectiveness. It is always a thrill to know that thousands of stations across North America and Hawaii and Puerto Rico participate in this event each year, and that we would exchange brief greetings with many of them.

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Steve, N9WAT, Enjoying Morning Tea

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The Restoration of an Old BC-223A

Serial Number 355

Pete Buehner, N8PB

BC-223A WWII XMTR
After Restoration

My story of the BC-223 begins in the summer of 1964 while I was a sophomore in high school. I originally joined the school's amateur radio club to get my ham ticket. Unfortunately, being involved in so many other school activities, I never got around to getting my license. Getting that license would have to wait for at least 20 more years. However, I didn't walk away from that club completely empty-handed. For five dollars I acquired a WWII surplus radio transmitter at one of the club's many flea markets. It was an old BC-223A transmitter.

Unfortunately, being only 16-years-old, without a job, and very little money, I couldn't afford an appropriate power supply, and even if I could, I had minimal electronic skills to get that rig working. Nonetheless, I brought that radio home anyway, and it lived in my bedroom throughout my high school years. Oh yeah, I occasionally twisted the dials and dreamed of the day when I would eventually get it fired it up. But, the only thing I ever managed to ever do was to light the filaments. As time went on, I eventually disassembled that old radio just to see how it was put together, before long it was in hundreds of pieces, with the bulk of it winding up in the trash.

> *"…equipment-starved amateur radio operators."*

Back in the sixties, WWII radio surplus goodies were available in relative abundance. The Heathkit Company, at that time, was a big buyer of war surplus equipment, and was instrumental in getting many of those rigs into the hands of equipment-starved amateur radio operators.

I always felt a little perturbed at myself for dismantling that transmitter. After the Internet arrived I finally started doing a little research about it, and learned the BC-223 was actually designed for use in various receiver/transmitter configurations. It carried a variation of either the SCR-210 or SCR-245 designation, and was one of the communications workhorses prior to the outbreak of WWII. It was commonly used in light and medium tanks, combat cars, scout cars, ½-ton trucks and 75mm gun motor carriages. Its usage continued through to the early part of WWII until it was finally replaced by more sophisticated equipment.

Well, as luck would have it, I was surfing the Internet a few years ago, and came across a BC-223A that was being auctioned on eBay. Well, I jumped on it. I put in a "high bid" of $50—ten times what I paid for it nearly 40 years earlier! I fully expected to be the top bidder at the end of auction. Well, to my astonishment, that rig went for nearly $500! I was stunned! I couldn't believe that it would fetch that much. I decided to put the BC-223 into my Favorite Searches on eBay and waited for another one to come along. Every once in a while one would appear, and each time it commanded a high price. I was starting to feel as though I would never own one again.

Then, one day, I received an e-mail from eBay informing me that one of my Favorite Search requests had found another BC-223A. Well, this time it was on my day off. I knew I was one of the first to hit the Web site that day. The hit counter was still low. It was an estate sale and the radio looked complete. Interestingly, the seller also inserted a BUY NOW button with the "low" purchase price of $400. I quickly called my wife at work to get her permission, and after a short conversation, she agreed. I immediately pushed the BUY NOW button, and the rig was mine! Waves of nostalgia crept over me. I finally owned a BC-223 again! My second rig–nearly forty years to the day of my first acquisition.

It was a great day in Mentor, Ohio, when that UPS guy lugged it up the front steps. That rig sat on the living room carpet for well over two weeks before I began tinkering with it. All I did was stare at it. It

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wasn't, necessarily, a gorgeous radio; it had some wear and tear, with and a little corrosion here and there. But, it was complete! Nothing missing.

A few months later I bought an old Fluke 407D power supply, and six months after that, the first signals emanated from the rig. Each bit of progress swept me with pride. I soon purchased a matching T-17 microphone from a radio surplus house in London, England (**http://www.armyradio.com/**), and even found a crystal supplier who would "rock up" pretty much any frequency on a crystal and install it into an appropriate crystal holder–including the BC-223. I bought four crystals from him for each of the transmitter's four empty crystal slots. (**http://www.af4k.com/FT171crystals.htm**)

Next, I needed to find an original power connector, and my search led me to another company that sells war surplus radio goods and parts: the William Perry Company, Inc. of Louisville, Kentucky, they had the appropriate PL-160 power plug for my rig. With the addition of my new plug I could finally dispense with that rat's nest of alligator clips delivering power to the various power supply pin-outs.

Once I got the radio transmitting again, I thought, "Hey, that was fun. I'd like to do something like that again." So I decided to sell the rig on eBay and start looking for something else I could restore. Unfortunately, I made the mistake of trying to sell the transmitter around Christmas time. The bidding was really lackluster, and I was pretty disappointed—I guess selling an item like that around gift-buying season was not the brightest move on my part. After licking my wounds and cooling my heels for a few weeks, I decided I should do something about the sorry state of the chassis, and figured it was time for a little bodywork. Little did I realize this part of the restoration would be even more formidable than any of the electrical work I did.

"…rat's nest of alligator clips…"

Basically, I completely refinished the chassis with black wrinkle paint. I replaced every 6-32 slotted pan head screw with exact size replacements on the chassis and purchased rub-on lettering that exactly matches the font and almost exactly matches the font size. I did some nickel electroplating where the metal was particularly worn, and even found new "toilet seat" lids for the key and microphone sockets at Fair Radio Sales.

Some parts of the mounting clamps, locking clips, clip buttons, switch stops and hand-locking screws on the transmitter's chassis were in pretty bad shape, with the brass actually showing through. After some searching, I found a handheld nickel electroplating kit from Caswell. With their product, I was able to electroplate the old brassy-looking metal with new nickel-plating. The restored surfaces increased the luster considerably.

Before Restoration

The beauty of Caswell's product was that it didn't require any immersion or removal of parts. Their kit included a little 4.5 volt DC wall supply module. Using an alligator clip, I connected the negative pole to the transmitter chassis ground, and the positive pole to a handheld cloth wand saturated with the included nickel sulfate solution. All that was required was to slowly stroke the selected areas of the transmitter with the wand and the nickel-plating slowly appeared. Of course, it was imperative the surfaces to be plated were first thoroughly cleaned. Caswell has solutions for anything including gold, copper, silver, chrome and nickel plating. The complete nickel-plating kit, with power supply, wand, 8 oz. of nickel sulfate and instructions costs about $30. They have a plating system for just about anything. You have to check out their Web site.

Next, I drilled out seven frozen screws on the chassis, and tapped in new threads. I went to Lowe's and found "tap and drill" combos for about $4 each (Vermont American #21681). I bought four of them, but wound up using only two. It took the longest time to find the appropriate size pan head slotted screws to replace the old ones on the transmitter. I finally found a boat-building supplier in Jamestown, R. I. (**http://jamestowndistributers.com**) who carried the exact screw needed. I also put a lot of thought into whether I should replace the screws with the original black heads or stainless steel. I finally decided on stainless steel because the new shiny screws would match so nicely with the newly nickel-plated surfaces and contrasted beautifully against the new black wrinkle paint. I figure if I ever changed my

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mind, it would be a simple matter to replace the screws with the black heads. I bought the 6-32 threads in two different lengths: one-quarter inch and one-half inch—priced pretty reasonably—at about $5 per 100.

Cabinet Refinished with iBlack Wrinkle Paint

I then purchased four cans of VHT High Temperature Black Wrinkle Paint ($9) from Antique Electronic Supply. However, before painting, I took numerous photos of the placement and wording of the original lettering on the transmitter. The photos would be my only guide when it came time to apply new lettering. I even made cardboard templates for some of the more complex letter/number positions on the tuner section.

I thoroughly hand-cleaned the non-removable covers with Formula 409 and a toothbrush. Any cover that could be removed went through the dishwasher. Just prior to painting I preheated the surfaces with a space heater to about 85 degrees. I painted in deliberate baby-steps. First, I tried my inexperienced technique on the little (removable) inspection plate on the left side of the transmitter. Next, I worked on the (removed) right side pocket, followed by the top front cover. As I got more courageous, I did the right panel, and then the back lower cover, followed by the top/rear angled cover. By this time I figured I had enough experience and decided to mask-off all the exposed metal on the left cover, where the control and dynamotor sockets were located, and went for it! It came out great. Finally, I masked-off the face of the tuner and the transmitter and painted those surfaces.

"…Formula 409 and a toothbrush."

I discovered the trick to achieving a good result when applying wrinkle paint is to keep the surfaces flat, applying a heavy coat first, followed by about four or five additional lighter "irritant" coats (in four- or five-minute intervals). Each new coat was applied to the previous while it was still wet. It's important to not apply the paint too heavily, and you can't allow it pool or run. Doing some practice applications on other pieces of metal first is highly recommended.

Once the paint is applied, the wrinkles begin to appear within a couple of hours, and continue to become more evident over the next eight to twelve hours. The more coats applied, the larger the wrinkles become. To accelerate the process, I made a point of keeping a space heater directed toward the freshly painted surfaces to speed up the curing and drying process. I think my results came out great—nearly factory. Those shiny new stainless steel screws really contrasted nicely with the wrinkle paint. The transmitter looks like a classic special edition model.

Antique Electronic Supply also sells the correct size rub-on transfer lettering that suited the transmitter perfectly. I bought six white rub-on lettering packets: three ham radio lettering kits (S-M180), two audio lettering kits (S-M178) and one dial lettering kit (S-M176) for the little printed "lock arrows" above the tuner's hand-lock screws—about $5 per pack. However, getting the lettering on properly was a bit tricky. For the left cover, where there were multiple antenna connections in a row, I stretched a bright white sewing thread across the surface and secured it in place with tape at both ends. That gave me a straight-line guide for lettering. I then cut the specific letter wording from the sheets for each application, and slowly rolled a piece of clear Scotch tape over it, transferring it onto the sticky surface. I then slowly and carefully placed the lettering into position using the tape as a transfer device and lightly pressed it into place.

Using a ballpoint pen, I then lightly "scribbled" all over the tape above the lettering until the lettering transferred onto the surface of the transmitter. Lots of practice was necessary for this stage, but fortunately each sheet of rub-on letters included more wording than I actually needed. Of course, mistakes did happen, and when they did, I "removed" them with another piece of tape placed directly over the error. Scribbling on the tape again, raised the error off the panel and on to the tape.

All in all, I spent nearly nine hours applying the lettering to the transmitter. The various combinations on the lettering kits did not provide all the original lettering/wording on the transmitter. So, I had to "cut and paste" various word combinations together first, line them up on my work table, roll the tape over it, then transfer them on to the face of the transmitter with the tape. Many of the transfers went bad and/or became misaligned, which required a redo.

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Compounding the problem was that the rub-on lettering kit that I bought only included two "right turn" arrows for the locks. Mental preparation was paramount.

Finally, to permanently secure the rub-on lettering to the chassis, I applied several very light coats of clear acrylic spray. I found that Minwax's water-based Polycrylic Clear Gloss worked best. To verify it was suitable, I first applied some rub-on lettering to the back panel of the transmitter's chassis and sprayed the protective coating onto the lettering. After letting it dry for a few days, I ran the panel through the dishwasher with dish soap on full cycle. The lettering held fast and the acrylic was virtually invisible.

The BC-223A looks brand new, just as though it just came off the Rauland Corporation's assembly line, or had only recently been discovered as new old stock in some long forgotten warehouse. It's hard to believe this transmitter was actually manufactured in 1942. All it took was a little time and patience.

I would be glad to answer any questions about the restoration project. Please send e-mail enquiries to ***n8pb@comcast.net***

Additional pictures of the rig can be seen at: ***http://home.comcast.net/~n8pb/bc223/***

Pete Buehner, N8PB, is also the owner/moderator of the Ham-Radio-History history forum at Yahoo Groups: ***http://www.yahoogroups.com/list/Ham-radio-history***

Ham Quips

DICK SYLVAN, W9CBT

HEY FRED! I FOUND THE PERFECT PLACE TO SET UP FOR FIELD DAY!

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Our operation this year from Camp Lakota near Woodstock, Illinois experienced shutdowns due to nearby thunderstorms, poor propagation (especially Saturday afternoon), and S-9 static crashes on 80-meters, requiring repeated fills from some of the weaker stations calling us. At times, we had to cover the radio with clear plastic sheeting in order to continue operating during the heavy rain showers. Our 100 watt station, connected to the ether with K9PL's maypole antenna erected in a high and clear location, put out an above average signal and allowed us to work all fifty states and achieve a respectable ranking among other 1A Field Day groups. I hope Robert Heytow, K9YA (SK) is proud of our efforts in his memory. ■

K9YA Field Day Box Score

Class: 1A | Section: IL
Power Multiplier: 2 (< 150w)
Participants: 5
Hours Worked: 22.5

QSOs

1,214 CW QSOs x 2 = 2,428 pts.
Power Multiplier x 2
Total QSO Points **4,856**

Bonus Points

100% Emergency Power	100
Media Publicity	100
Set-up in Public Place	100
Information Booth	100
NTS msg. to ARRL SEC	100
W1AW Field Day Message	100
(10) Formal NTS msgs.	100
Site Visit by Elected Official	100
Site Visit Served Agency	100
Submitted via the Web	50
Total Bonus Points	**950**

Claimed Score **5,806**

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Ignoring the courses' instructions, I found the LPs and cassette useful until I started memorizing their contents. In retrospect, the booklets contain some interesting and historical information on using a straight key and include tables of Q-signals, the RST system, the FCC's amateur and commercial licensing structure and common abbreviations. Also included were schematics for constructing tube-type and transistorized code practice oscillators. The Rider booklet's schematic for building a tube-type CPO requires 65.7 volt and 1.5 volt dry cells and employs a 1G4-G tube. Photos of some commercially available CPOs include a Knight Kit and a large, slope-front Heathkit.

The Listening Advantage

After learning the Morse alphabet, numbers and punctuation I progressed most enjoyably and quickly by copying the amateur, commercial and maritime CW traffic with a Hallicrafters SX-9 receiver and a few feet of wire tossed on the basement floor for an antenna.

William G. Pierpont, NØHFF, in his book, *The Art and Skill of Radio-Telegraphy* (See: *K9YA Telegraph*, March 2006, pg. 1), frequently repeats his admonition to always recognize characters, directly, by their sounds and to never use any intermediary steps on the way to attaining code competence.

Whether you're just starting out with Morse, a code instructor or an elmer, here's some of the best advice you'll ever be able to use and to share; it's from *The Art and Skill of Radio-Telegraphy*.

- *Never even LOOK at a written table of the Morse code before starting to learn, and certainly NEVER attempt to memorize one visually, or have anything to do with software that "shows you the Morse characters on the screen."*

- *Don't have anything to do with methods that ask you to listen initially to successions of dots and dashes, or parts of characters. Doing this will RETARD your progress. Listen ONLY to complete, correctly sent, characters.*

- *Never listen to Morse at a character speed of LESS than 12-wpm. Use 14-wpm or faster, if possible.*

- *Don't learn by memorizing opposites, such as 'K' and 'R.' This actually causes some people to confuse them ever after!*

- *Don't spend lots of time copying random code groups. Reading plain language is very different, and that's what the test requires. Random code groups are popular because computer programs can be easily designed to send them. They do have a place, that is, for first identifying characters and then later practicing any "hang-up" characters, but that's all.* ■

Another Secret Handshake

The Saga Continues

Shortly after the article "The Secret Handshake" appeared in the June 2006 issue of the *K9YA Telegraph* K9PL's antennas led to yet another encounter of the amateur radio type.

My residential telephone line lost its dial tone. The repairman dispatched to solve the problem caught sight of my antennas and asked that now seemingly eternal question, "You a ham?" Turns out not only is he a ham, but also an antique radio, telephone and telegraph apparatus collector. Yep, you never know when or where you'll meet a fellow ham. ■

It's Your Turn...

Tell Us Your Story

Do you have an interesting ham radio story to tell? Do you want to report an operating event or club activity, illustrate a technique, recount a memory of the "Golden Age of Amateur Radio," describe a construction project, or express an opinion? If so, the *K9YA Telegraph* invites you to share it with an elite group of interested and active hams worldwide.

We also seek to record the wartime experiences of WWII and Korean War radio operators, both military and civilian. We especially seek the stories of radio operators who were hams before the war and those who became hams following their wartime service.

Not sure of your writing skills? Not to worry, the *Telegraph's* staff will edit your manuscript; the important thing is to get your story out there. When possible, and appropriate, photograph(s) to accompany your article significantly enhance content. See our Author's Guide for additonal information.

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