



# OSCILLATOR

DELAWARE VALLEY HISTORIC RADIO CLUB

The Official Newsletter of the DVHRC

Editor: Ludwell Sibley

Vol. 3 No. 10, November 1995

## THE MONTHLY PREZ

Mike Koste

Much like the change in seasons, this month's *Oscillator* provides an interesting study in color and contrasts, depending upon your collecting interests.

For those entertained by pre-broadcast era equipment, LUDWELL SIBLEY provides a detailed report on the now-legendary Henry Ford Museum event held in October in Dearborn, Michigan. In auction activity from closer to home, we also review the results of the Arnold Finkel collection of '30s, '40s and '50s radios that was put up for bids in Kulpsville, PA a bit earlier in October.

Due to space limitations, our "up close and personal" with MICHAEL TANNENBAUM will be featured in next month's edition.

I'd like to call your attention to some upcoming DVHRC activities that need your help and support. Firstly, at our Nov. 14 meeting in Souderton, we'll be opening up the floor for nominations for the 1996 DVHRC Board of Directors. The election itself will be held at the Dec. 12 meeting in the midst of our first-ever Christmas party. (It's a catered event, folks, so bring your appetites and one of your homeliest items for the Ugliest Radio contest!) Our tech-talk in November will shine the spotlight on the aforementioned Mr. Sibley who'll share his expertise on tube care and restoration. [*Tube Lore I*: a talk on identifying, testing, repairing, reactivating, substituting, and stocking tubes. With rare exceptions, they don't make 'em any more; yet many tubes in vintage radios can be helped into, if not a second childhood, then at least a second middle age.]

Secondly, many thanks to FRANK JOHNSON who rescued the radio from a certain one-way trip to the landfill, JIM AMICI for a quick and thorough chassis rehab and

### DVHRC SWAPMEET, NOV. 18

The Third Annual DVHRC Fall Swapmeet is slated for Saturday, November 18, from 8 AM until 1 PM, behind North Penn Amusements, 117 Main St. (Rte. 113), in Souderton, PA. Unlike most of our past events, this is a "no-frills" affair: tallgating-only; no contest, raffle, admission or parking donation . . . just plenty of your fellow enthusiasts offering a myriad of old radios, parts, tubes, paper and related miscellany.

Following the swapmeet, we'll conduct a walk-around auction where sellers can put their unwanted items up for bid. A one-dollar buyer's premium per item will be charged to benefit the club treasury.

Space in the parking lot is very limited, so only sellers' vehicles will be allowed in. Public parking is available in the municipal lot behind the pizza shop across the street. Vendor spaces are only \$5 (\$8 on the day of the event), or \$2 more if you require electricity . . . but don't count on "day-of" spaces to be available. Make your reservations now by calling Dave Abramson at (610) 827-9757.

The DVHRC Fall Meet is customarily the final event of the East Coast antique-radio season, so we're expecting an excellent turnout. Watch for ads in *A. R. C.* and *The Philadelphia Inquirer/Daily News*.

### UPCOMING MEETINGS

Tuesday, Nov. 14 and Dec. 12, 7:30 PM, at North Penn Amusements, 113 Main St. (PA Rte. 113), Souderton.

### JOINING THE CLUB

Just send \$10 to DVHRC, Box 41031, Philadelphia, PA 19127-0031.

### ADS & SUCH

Please send ads, articles, etc., to Ludwell Sibley, 44 E. Main St., Flemington, NJ 08822, (908) 782-4894. For urgent items, we have a fax machine on this same number.

## ON THE HORIZON

Oct. 29	Penn Wireless Assn. indoor-outdoor hamfest, Bucks Co. Comm. College, Newtown
Nov. 18	DVHRC Fall Swapmeet, Souderton
	Radio Auctions, Downingtown, PA and Belleplaine, NJ
(until) Nov. 22	Radio History Society exhibit, Washington

DAVE ABRAMSON for arranging the cabinet work. Their contributions to the organization have made possible a fine raffle item for the Fall Swapmeet: a lovingly restored General Electric H-113 console, vintage 1939. (See Evolution of Radio II, page 102, to become better acquainted). Chances will again be bargain-priced at a buck apiece or six for five.

Hope to see everybody in November . . . if not at the meeting, surely at the swapmeet. Spaces are going fast.

### DOWNINGTOWN RADIO AUCTION - NOV. 18

After you've taken in the DVHRC meet early on the 18th: the Smith Auction Co. is holding another of its specialized vintage-radio and electronics auctions at 10 AM. This one promises to offer vintage tube hi-fi gear, test equipment, 200+ mostly-'30s table (and console) radios, some communications receivers including a National SW-3, telegraph equipment, Photofacts, tubes, and parts. The material will be on preview 10-to-10 on Friday and 8-to-sale Saturday. A catalogued sale (\$5 by mail, \$3 at the door), the event will be at the Downingtown Marketplace on Bus. Rte. 30, 6.5 mi. from Exit 23 of the Turnpike, next to the Tabas Hotel. Terms are cash or approved check; bank letter of credit for out-of-state buyers; 10% buyer's premium. For details: (610) 942-2367 or 269-1036. [Thanks to Frank Maggiore for supplying details.]

### NEW JERSEY RADIO AUCTION - NOV. 18

The Classic Liquidation & Auction Service plans an antique-radio auction of "over 700 lots . . . from collectors and dealers across the country" for Saturday the 18th. Site will be 346 Handmill Rd., Belleplaine, NJ (about 20 mi. SE of Vineland). Operating terms: cash-only, no buyer's premium, food available. Contact number is 609-861-1111. Note: it appears that certain warehoused material not sold at the Bridgeton auction (see below) will be offered here. Details will be available via your friendly editor after Oct. 27.

### RADIO HISTORY SOCIETY: "RADIO & TELEVISION ENTER THE HOME" EXHIBIT

You may have read in these pages about last year's public display of historic entertainment radios and TV sets put on by the Radio History Society (scion of the Mid-Atlantic club). Well, they're at it again: this time, with an exhibit at George Washington University from Oct. 26 to Nov. 22. Their displays will "demonstrate the evolution of mass communication in America through . . . radio and television sets, microphones, broadcast memorabilia, and early [radio-TV] broadcasts." This is, in part, in celebration of the 75th anniversary of KDKA's signing-on. Co-sponsors are CBS, the Radio-Television News Directors Association, and the university. A special anniversary program will take place on Thurs., Nov. 2, with Washington air personality Ed Walker, and a reception the next day with Charles Osgood of CBS.

The location is the Marvin Center multiuse building, third floor, at 800 21st. St. NW in Washington, DC. If you're in the area for a MAARC meeting or other visit, this would be a good stopoff. The displays are to be available for viewing at, in essence, all hours.

### FINKEL AUCTION TOPS \$30,000

Reported By Pat & Mike Koste

As many of you are aware, last month, longtime collector and DVHRC member ARNOLD FINKEL officially "retired" from the hobby and put his extensive collection of colorful "high-style" radios up for auction.

On Sunday, October 1st, Hamilton Auction Co., under the experienced gavel of Arnold himself, offered over 300 quality lots to an enthusiastic crowd of 60 bidders at the Holiday Inn in Kulpville. With the help of our PETE GRAVE, LEWIS NEWHARD, DON RECTOR and NED BORGER, Arnold managed to move the entire inventory in a little more than three hours. Unlike many radio auctions which tend to bog down due to a multitude of paper, box lots and bulky consoles, Finkel's offerings were limited to wood, plastic and Catalin "display ready" table sets and a table-ful of desirable transistors and novelty radios. It was quite an unusual experience to be in the same room with so many truly "class" pieces.

Among the highlights, a fine Sparton Bluebird sold for \$1900, a brown Majestic Charlie McCarthy for \$900, an unknown-model blue-mirrored Troy radio for \$1250, and a lovely Emerson Mae West for \$1050. A blue-mirrored Sparton Nocturne went for \$900, a very fine maple Emerson Stradivarius for \$525, numerous Catalins including a Fada L56 in maroon and butterscotch for \$1800, and a very early Pilot 3" TV - complete with carrying

case - went home for \$300. The high-bid item of the day was a very rare black Silvertone 6110 rocket-shaped radio for a rather disappointing \$2150.

Here is a rundown of the bulk of the program. Many of the more common radios have been omitted from this review due to space limitations.

### TUBE SETS

Air King A-450 midget, brown bakelite.....60	AX-217 midget, wood..... 75	white plastic & chrome..... 65
Airline	BD-197 "Mae West" ..... 1050	Stewart-Warner
62-337 "movie"-dial farm set.....60	DQ-351, wood Ingraham ..... 130	R-3044A, birds-eye maple, aqua trim.... 310
93WG604A brown b'lite w/tuning eye.....95	Fada	9001E dropleaf table w/pushbutton radio60
Arvin	1000 Bullet, butterscotch ..... 425	9182, black & red ..... 75
444A metal midget, white .....40	450W, brown bakelite ..... 160	Stromberg-Carlson 1500H, white..... 50
540T metal, green.....25	740, white ..... 50	Teletone, unusual translucent green swirl. 80
540T metal, red.....75	845, white marbleized plastic ..... 145	Troy, blue mirror..... 1250
Belmont	L56, maroon & butterscotch Catalin... 1850	Truetone
5D111, white .....130	Firestone S-7403-4, wood (Ingraham?) ... 175	"Stratoscope," Beetle plastic ..... 400
6DIII, white.....120	GE H-500, big thumbwheel, white..... 110	D2017 boomerang, brown..... 90
Colonial 653 wood tombstone.....180	Guild Spice Chest ..... 75	Zenith
Crosley	Majestic	6D2615, brown ..... 75
"Musical Chef," white w/red & timer .....35	"Charlie McCarthy" brn b'lite ..... 900	6D311 deco, brown bakelite..... 150
11-119U left bullseye, blue metallic .....220	370 (?) wood mini-cathedral..... 165	6D510, white w/tan handle..... 55
D25CE "dashboard," lime green .....60	5LA5, brown bakelite ..... 55	H-511, green.....20
II-100U center bullseye, white .....130	Musicaire, yellow plastic w/orange knobs. 35	Royal 1000 Transoceanic..... 50
II-102U, center bullseye, green.....200	Northern Electric "Rainbow", light green. 160	
II-101U center bullseye, blue.....300	Philco	
II-114U left bullseye, white.....120	49-501 small boomerang, brown..... 235	Bulova 620 Comet
II-114U, left bullseye, cream .....100	49-901 w/large roller knob, white plastic. 80	Aqua ..... 110
II-116U, left bullseye, grey .....140	52-548, ivory plastic..... 70	Ivory ..... 100
Super Sextette, coppertone.....55	Pilot TV-37 3" TV w/carrying case ..... 300	Crestline 6T-220 bullseye, red ..... 60
Delco R1231A "ribbon candy" brn b'lite ....60	RCA 96T4, wood w/chrome bars..... 30	Emerson
Dumont RA-346, oriental clock, red.....90	Setchell-Carlson	888 Atlas, black ..... 85
Emerson	416 "frog eyes," red & white..... 125	888 Explorer, (rare) green..... 225
"Stradivarius," maple.....525	416 "frog eyes," white..... 60	888 Pioneer w/case, turquoise ..... 55
106, oval wood cabinet, Ingraham.....130	416, maroon and white ..... 70	999, black ..... 140
157, black & white, gold grille.....330	Silvertone	Global GR-II, blue ..... 70
400 Aristocrat, green Catalin .....875	"Candy cane," Beetle plastic..... 120	Hitachi TH-666 w/case, white ..... 60
517 "Moderne," red w/gold grille.....210	6610 "Rocket," black plastic..... 2150	Motorola 7X24S, tan/brn, chrome jet ..... 180
520, brown swirl Catalin, white grille ....100	Sonora WAU243, white plastic..... 190	Panasonic R-103 w/case, black ..... 50
540 "Emersonette", white Plaskon.....160	Spartan	Spica ST-500, bright blue..... 45
540 "Emersonette", red .....140	"Bluebird," blue mirror..... 1900	Spica T-500 w/case, box, paper, grey ..... 75
570 "Memento" .....105	557, blue mirror..... 900	Tarleton w/case & antenna, white..... 40
615, wood (Ingraham?) .....60	Wood-grained metal w/chrome trim..... 160	Toshiba 8TM-294 w/case, box & paper, tan
744 plastic, two-tone green .....180	Sterling "Deluxe"	w/blue sparkle grille ..... 75
744, grey & red plastic.....300	White plastic w/chrome wrap-around.... 100	Webcor B308, blue & white..... 90
AX-212, wood bullseye, Ingraham .....250	Blue w/chrome wrap-around trim..... 170	Zenith
	Sterling LS4 Japanese mini-tube portable,	Royal 500 Long Dist. Deluxe, maroon.... 55
		Royal 500H, black ..... 80

### TRANSISTORS

## AUCTION REPORT - BRIDGETON, NJ

An unusual liquidation auction took place in Bridgeton, NJ on Sept. 22-23. With numerous DVHRC members there (alerted by the ever-vigilant *Oscillator*?), a follow-up report may be of general interest.

The promotion for the event described it as the contents of a "radio repair shop." But that was too modest: rather than the usual neighborhood radio-TV repair place, it turned out to have been a regional parts distributor and mobile-radio maintenance site as well as a collection of military gear and a cache of once-elegant lab gear. The claim "over 10,000 new boxed tubes" may have overinflated hopes, as a fair amount of used tubes (e. g., 6550s) were included.

What the bidders got was a layout of tables in a warehouse, packed with miscellaneous lots varying from treasures to Dumpster Bait. There were about 40 bidders the first day ("tube day") and perhaps 20 the next. The true radio-restorer types walked out smiling, with boxes of new-old-stock speaker field coils, Zenith dial glasses, 175-kHz IF transformers, etc. Tube enthusiasts, many of them brandishing the current Antique Electronic Supply "buy" list, got numerous good deals on groups of new and/or used tubes - generally cheap, but a case of N. O. S. VT-4-Cs got bidden up to about \$70 a tube. (Remember when the VT-4-C was an obsolete triode suitable for use only in the horrid BC-375 transmitter of early-'30s design vintage? Well, it's a fashionable audio tube now.)

The military gear sold included both famous and obscure stuff: ARC-5, BC-645 (18 of 'em!), RAK, RBA, CW-3, TCS, T-350-XM, an IFF interrogator, an RCJ radar-countermeasures set, etc. Comm-equipment collectors picked up an NC-77, NC-300, a couple of Sky Buddies, S-37, S-53A, SW-54, and so on. Entertainment radios were mainly parts sets with holes blown in the bakelite, but a nice Ingraham-cabinet Emerson went for only \$3.

The sale on the first day can be described only as bizarre. After a couple of hours of sales that covered maybe 40% of the tubes, the auction conductor called for a short break. He then announced that a single bid would cover *all* tubes remaining in the building, and that the owners had received a offer of \$6000 for all of them. On receiving flak from bidders who resented a change of rules in mid-sale, he resumed as before.

The sale then reached a large group of tubes where the owner required sale by-the-piece. This covered some desirable stuff as well as a large lot of humble 12A8s! It slowed the sale down greatly. At day's end, it was announced that 24 pallets of military gear would be added for the next day. Not so; it was maybe six, with gossip having it that more would be sold in the Nov. 18 event (see above). To sum up: this was a fluky sale - lightly attended, in a remote location - that yielded inexpensive "fun" stuff to those who attended.

### CONGRATULATIONS

To David Kraeuter, editor of the PARS journal *Pittsburgh Oscillator*, retiring this month after ten years (!) of producing a lovingly crafted quarterly. He brought this publication - the "senior service" as seen from the Delaware Valley - into the world of desktop publishing and high-quality printing, with a bit of spirit and humor thrown in. Best wishes!

### AUCTION REPORT - DEARBORN

Have you ever attended a radio auction where the average lot was \$600? That's how the Henry Ford Museum stock-reduction ("deaccession") sale went on Oct. 6-7. About a thousand lots drew a total of around \$600K. The lowest item went for only one dollar, but about 60 lots went for above \$1000 each. But raw dollars are hardly the whole story.

What this sale was about was a unique group of early wireless gear, much of it Marconi equipment of 1910-1920, but with other extraordinary makers' names like Newton & Wright (British), Wireless Improvement Co., NESCO, De Forest, Kilbourne & Clark, and Hammond. There was a veritable scrapyard of parts for big spark transmitters of WW I vintage. There was a whole supply depot of WW I military sets and subunits: Army SCR-49, -59, and -68; Navy SE-68, -143, -1000D, -1071, -1419, -1420, -1690, and -1950. Attracted by these rarified goodies, heavy-hitter bidders came from France, Sweden, California - and at least four (Borger, Frisbie, Newhard, Sibley) from DVHRC.

The auctioneer was Richard Estes of Medina, OH, whose sale results routinely appear in *Antique Radio Classified*. Jim Clark and the Michigan Antique Radio Club provided preparatory labor and handlers during the sale. Bob Dobush of Cleveland got the tubes into logical order, including emission testing of the more interesting ones. The sale was held in a large tent on the museum grounds - a wise precaution, given rain on both days - and ran 10 AM to 5 PM the first day, 10-3:30 the second, without lunch breaks. (Estes is to be congratulated on his stamina and enthusiasm during this ordeal!) There were some irritations - the lot numbers in the printed catalog had to be abandoned for the actual sale; the handlers insisted on bellowing YEAOW! on spotting bids - but on balance the sale went well and accuracy of bid records, etc., was very good. A commercial packing service was available in the checkout tent.

Every auction has its own "texture" or character. In this one, multiple bidders expressed a feeling of relief afterward that most of the rare stuff was being kept in the U. S. (this despite the British, German, and French origins of many of the treasures). One active French buyer was fun to watch: as the bidding on one item went "\$18,000 . . . \$19,000 . . . \$20,000 . . ." he calmly held his bid card in the air with one hand while eating French fries with the other!

There was a special draw to much of the material: much of it was clearly identified as having originated in the RCA-George Clark collection of the late '20s or the McMurdo Silver collection of somewhat later. Even simple parts attain a special appeal when attached to a red 1931 tag reading "National Radio Museum Warehouse / G. H. Clark, Curator," or "National Broadcasting Co, Inc. / Radio City Museum / Joseph D'Agostino, Curator." (Clark was a sort of official historian at RCA; D'Agostino was a special assistant to David Sarnoff.) However, despite the price pressure, alert bidders got some bargains, particularly in the area of vacuum tubes.

The equipment was not necessarily in prime shape: much of it was as pulled out of an RCA or other lab generations ago, with small parts missing ("the rheostats always go first") and grimed-up in years of storage. Material that had been restored for display often reflected the museum's apparent penchant for shiny-bright, rather than authentic, restorations.

*Radio Age* and *A. R. C.* will feature auction results in detail. For now, here are the "hottest" items:



## THE TOP 40

Marconi 101 tuner, S/N 28, mod. 1913 prod., orig. det., VG ....49,000	Electrolytic detector, dual, German, ex-Tuckerton, dingy .....5500
De Forest two-step Audion amplifier, less tube sockets, NT (!).....27,500	NESCO CN-240 tuner, fair, ex-McMurdo Silver.....5500
Marconi magnetic det., w/ beveled-glass top, refin., exc. ....25,500	Marconi Type 55 amp for V24 tubes, 1 tube, no lid, else VG .....5000
Adams-Morgan RA-6 tuner, VG .....24,000	WSA loose coupler, good.....4900
Can. Marconi Type 2848 tuner, less knob, else exc.....20,000	Army pack set, small (sim. to SCR-49).....4500
Am. Marconi 106D tuner, less one knob, finish fair; else VG.....18,000	Marconi Type 71 rcvr, for 3 V24 tubes, NT, VG.....4000
De Forest OT-10 transmitter, VG, NT .....14,500	Westinghouse Aeriola Grand, NT, less endplate, else good .....3800
Hammond Signaling quenched-gap spark xmtr, VG.....13,000	NESCO CN-113 tuner, less nameplate, else good.....3250
Marconi magnetic detector, no lid, exc. ....11,000	Quenched gap/coil, S. F. R.-E. (French), panel broken, else good 3200
Marconi No. 34052 dual tuner, less one control, else good.....11,000	International Radio det-amp-tuner (4 pieces) w/ one tube.....3100
WECO CW-938 transceiver, one meter broken, NT, else good ..11,000	Wireless Improvement Co. xtal det, less switch, else good .....3050
Radiola VII, WSA prod., less one tube, refin. ....10,500	WECO SCR-68 transceiver, tube status unk., good.....3000
SE-143 tuner, less buzzer, fair.....10,500	Triple xtal det., Wash. Navy Yard Type A No. 199 (SE-183A) .....3000
WSA CR1917 (IP-77) Navy receiver, less panel parts, else VG.....9000	Marconi quenched-gap panel, good .....3000
Spark transceiver, large pack-set, less receiver unit, fair.....9000	Marconi No. 1910 wavemeter, VG.....3000
Marconi No. 11 DF, less its six V24 tubes, VG .....9000	Cutting & Washington rcvr, NT, case cut away, else VG.....2900
NESCO Navy pack set, quenched-gap, 6 pancake coils, 1917.....8000	Magnavox AC-3 3-stage amp., NT, refin.....2700
NESCO SE-143 tuner, exc. ....8000	Grebe CR-18 rcvr w/ coils, less rheo, mod. to 5-pin tubes, VG.....2600
Marconi 106 tuner, 1915 prod., less one control, refin. ....8000	
French radio-compass rcvr, "wireless" vintage, VG .....7000	
Am. Marconi 122 rcvr, NT, less "fil." switch, else VG.....5800	
Wireless rcvr, board-mounted demonstrator, 30" x 40" .....5500	

NT: no tubes; VG: very good; NESCO: National Electrical Supply Co.; WSA: Wireless Specialty Apparatus; WECO: Western Electric

## WANT ADS

Free exposure for your desired or unwanted stuff! Unless requested otherwise, we'll run each ad for two months, and will send ads to the *NJARC News* for double coverage.

**WANTED:** DVHRC members for volunteer activities in 1996. We can use your help in our efforts to encourage growth in the club, donations to the reference library, gifts to the tube program, and tech talks. Of course, contributions to the *Oscillator* are always welcome too. If you can spare a couple of hours a month on behalf of the club, please step forward!

**WANTED:** Langevin 128-N rack-mount PA amplifier. Frank Hagenbuch, 1440 Lafayette Parkway, Williamsport, PA 17701, (717) 326-0932. (10/11-95)

**WANTED:** Tabletop, Edison, Victor, and Columbia phonographs. Also all phonograph-related items: records, wax cylinders, needle tins, cutters, dusters, advertising mirrors, original advertising items. Please write or call with description, condition, and your price. Thanks! Bernie Seinberg, 714 Moredon Rd., Meadowbrook, PA 19046-1907, (215) 886-6124. (10/11-95)

**WANTED:** Desperately seeking a clean pressing of the Fats Waller 78-RPM record "Louisiana Fairytale" on RCA Victor. Will pay a fair price or consider trade for 1920s vintage "race" or spoken-word records. Mike Koste, (215) 646-6488. (2-96)

**WANTED:** Col-R-Tel TV color wheel, or similar, from the mid-'50s. Dave Abramson, 1649 Yellow Springs Rd., Chester Springs, PA 19425, (610) 827-9757. (10/11-95)

**WANTED:** AK 275 receiver in good condition. Bob Messerschmidt, 764 Backhus Estate Rd., Glen Gardner, NJ 08826-2205, (908) 832-6976, 8-11 PM. (10/11-95)

**FOR SALE:** Booklet of 64 pages describes Federal Tel. & Tel's radio operation from the beginning in 1921 to its demise in 1929. Over 60 illustrations, including pictures of early Federal RF and audio amps, all early radios, and many Federal parts. The article and NFWA presentation by Dick Schamberger, Federal expert, are included. All Federal models are listed with the year/month introduced, price new, and brief description. Buffalo's first broadcast station, Federal's WGR, is covered. There are two pages of references for more info. This is more about Federal than exists in any other spot! Good-quality printing. Send \$4.95 + 1.00 S & H to Larry Babcock, 8095 Centre Ln., East Amherst, NY 14051.

**FOOD & DRINK:** a good place to join fellow collectors for dinner before meetings is the Hillside Tavern, half a block uphill from the meeting site.

## "MYSTERY TUBE" DEMYSTIFIED

Another collector journal recently printed a "mystery photo" showing a grandmotherly woman named Quinn holding a '20s-style tube. The idea was that she had invented a tube with renewable heater: if it burned out, the user could simply insert another. The photo was otherwise unidentified.

As it turns out, the May 1930 issue of *Radio Engineering* contains a brief news item that partially explains the photo: "QUINN REFILLABLE TUBE - The National Radio Tube Corporation, Cleveland, Ohio, announces a re-

fillable (filament replacement) tube for radio and amplifier uses, on a-c or d-c. The heating element of this tube is contained in a hollow sleeve which extends upward through the grid structure. The heating element does not burn in the vacuum. [It] may be renewed at a cost of 50 cents."

It'd be fun to know if this device actually worked (?), or was just a promo stunt for yet another tube company that failed to survive the Depression. [Thanks to Alan Douglas for source material.]

## RADIO ANNIVERSARY PUZZLE

For those who tried it, Marsha Simkin's 100th Anniversary crossword puzzle in the last issue was *not* a trivial exercise. Take 39 Down: your car, microwave oven, TV set, etc. may contain zillions of silicon descendants of the Eccles-Jordan multivibrator, but "Eccles" is not exactly a household word. In any event, we are happy to present the official answers to the puzzle.

## RECALIBRATING YOUR SIGNAL GENERATOR

Ted Sowirka

Now that you've refinished and recapped your latest project, the next step is alignment. Most RF signal generators used by hobbyists are as old as, or older than, the radios being restored. Maybe the generator also needs recapping, and surely recalibration. At this point, however, let me say "If it ain't broke, don't fix it!"

If the generator is operating, verifying its frequency accuracy is easy. The following method is written up in many generator instruction books under "Maintenance and Servicing." Required is a radio with easily read dial markings on the broadcast band. But, first, the following information will help you understand where the accuracy for your calibration comes from. AM broadcast stations are required by the FCC to stay within  $\pm 20$  Hz of their assigned frequencies. Generally they are even more precise. The AM band is divided into 10-kHz channels from 540 to (formerly) 1600, or (now) 1700 kHz. A list of stations is occasionally printed in the Sunday *Philadelphia Inquirer* (or *New York Times*) entertainment section. It is worth clipping and saving. The stations listed are from NY, NJ, PA, and DE, and are easily received and identified in the Delaware Valley.

It is now time to turn on the generator and receiver to allow them to warm up. Place the generator output cable near the antenna of the receiver. Set the generator controls to give an unmodulated signal near 1500 kHz. Start with the strongest signal that the generator will produce (least attenuation). Tune the radio to a station near 1500 - for example, WBCB on 1490 kHz. Tune the generator until a whistle or note is heard in the radio speaker. As you tune from below or above the station, a high-pitched sound is produced which decreases in frequency, the closer you tune, until when right on, the sound disappears or burbles with distortion. This procedure is called "zero-beating." For best results and accuracy, reduce the signal from the generator (increase attenuation) and, if the station is strong, disconnect the antenna or null the loop. At zero-beat, note the position of the pointer on the generator. Record this location and mark it "1490." Repeat the process for a station at the low end and one in the middle of the band.

ACROSS		DOWN	
Number	Answer	Number	Answer
1	Popov	2	Onesti
7	Southworth	3	EHA
9	Braun	4	NBC
10	Elettra	5	Dunlap
12	ARCA	6	Volta
16	Tesla	8	Hazeltine
18	Bucher	9	Baird
19	Oerstad	11	Archer
20	Galvani	13	AWA
21	DS	14	Crookes
22	Morse	15	GE
23	Loomis	17	Armstrong
25	VZ	24	Wireless
26	BBC	25	Vyvan
29	Fessenden	26	Battery
30	QRN	27	Stone
31	DeForest	28	Henry
33	Terrey	32	Thomson
34	Spark	37	Kent
35	Lodge	38	Pupin
36	Gen	39	Eccles
37	Kenneily	41	Branly
38	Poulsen	43	Marconi
40	Slaby	48	Grebe
42	QST	49	Murgas
44	RCA	50	Crosley
45	TE	55	Hertz
46	Samoff	56	OTC
47	Galvin	57	Sreinmetz
51	Red	58	AC
52	ClerkMaxwell	59	Rev
53	Geissler	63	Jenkins
54	OHM	64	FCC
57	Shoemaker	66	EB
60	Tube	69	KDKA
61	Righi	70	Terman
62	FC	72	QSL
65	Preece	73	DC
67	Zworykin	76	Dash
68	JK	77	Key
71	CB	78	Bell
74	Gernsback	79	CQD
75	Conrad	82	CBS
80	Beverage	83	Farnsworth
81	Meucci	84	HH
84	HH	85	Herrold
86	Amp	87	Prescott
88	Helmholtz	89	Chapman
89	Collins	90	Pickard
91	Edison	93	Volt
92	Morgan	99	Ampere
94	Faraday	101	IL
95	SOS	102	EA
96	Coil	104	FM
97	Loki	106	Gauss
98	Vail	107	VHF
100	Massie		
103	Dumont		
105	Langmuir		
108	Fleming		
109	Kemp		
110	Telefunken		
111	Scott		
112	Field		
113	WLS		
114	Kelvin		

## PUZZLE ANSWERS

### "LOCAL" STATIONS

560	WFIL	860	WTEL	1110	WNAP	1310	WSSJ	1440	WNPV
610	WIP	880	WCBS	1150	WDEL	1340	WHAT	1450	WILM
660	WFAN	900	WURD	1210	WGMP	1350	WHWH	1480	WDAS
690	WYIS	920	WTTN	1240	WSNJ	1360	WNJC	1490	WBCB
710	WOR	950	WPEN	1260	WBUD	1370	WPAZ	1520	WCHE
740	WVCH	990	WZZD	1290	WJBR	1380	WAMS	1540	WNWR
800	WTMR	1060	KYW	1300	WIMG	1420	WCOJ	1590	WPWA

To check the generator on intermediate-frequency (IF) signals, switch it to the proper band and place the pointer on "455" kHz. In order to hear this or other IF signals (470, 262, 175, etc.), you will have to tune for the second, third, or fourth harmonic of the generator signal. As examples:

175 kHz (many early-'30s sets)	x 3 = 525 kHz	x 4 = 700 kHz
262 (some early Wells-Gardners, etc.)	x 3 = 786	x 4 = 1048
450 (a few early-'30s Philcos, etc.)	x 2 = 900	x 3 = 1350
455 (post-'39 standard)	x 2 = 910	x 3 = 1365
460 (numerous 1935-36 RCAs)	x 2 = 920	x 3 = 1380
465 (many early-'30s Sentinels)	x 2 = 930	x 3 = 1385
470 (most late-'30s Philcos)	x 2 = 940	x 3 = 1410

If the harmonic falls on a local station, a beat will be obtained. If there is no station at the required frequency, turn on the modulation (usually at 400 or 1000 Hz) at the generator. Then the signal can be heard. If the signal falls above or below a 10-kHz channel, interpolate the proper receiver setting. Remember that the broadcast stations, as heard on the radio, are your accurate standards. The signal-generator dial settings are "unknowns" until zero-beat against a "known." Make a record of each zero-beat frequency and keep it handy for future alignments.

### MADE IN PHILADELPHIA

### SHALLCROSS REMEMBERED

Bob Thomas, W3QZO

While attending Drexel Institute of Technology (now Drexel University), I participated in the Cooperative Education Program, whereby terms of classroom instruction were alternated with similar periods of temporary work in industry.


As a result of that program, I had nine memorable months of instructive, personally rewarding experiences at the Shallcross Manufacturing Company in my Junior and Senior years during the late '40s. This article is a reminiscence of those experiences, representing my best recollection of events, but with the caveat that it is subject to lapses and distortions that cloud one's memory with the passage of fifty years. Perhaps the few vignettes related here will provide some insight on industrial life in America before the invention of "personal cubicles," "work stations," and E-Mail.

John Shallcross founded his company in a former bakery in Collingdale, a suburb of Philadelphia, around the mid-'20s. The first advertisement I have seen for Shallcross Akra-Ohm precision wirewound resistors - the principal product of the company - was in September 1929 QST. In that era, thin-film technology was unknown; the only practical way to make a stable precision resistor was to wind hundreds or thousands of turns of fine resistance wire (as small as 1/1000-inch in diameter!) on a ceramic bobbin, typically a half-inch in diameter and an inch long. The wire was made of an alloy formulated for high resistance, low temperature coefficient, and long-term stability. After winding, the resistors were coated with varnish and baked or operated under load for several hours to stabilize resistance, then measured on a limit bridge to a tolerance of 0.1%.

From a modest beginning employing a few local women to wind precision resistors, the company rapidly outgrew its modest quarters, and moved to a grouping of modern one- and two-storey buildings on Pusey Street in Collingdale. The plant consisted of a large manufacturing building where about 160 women operated resistor-winding machines, a well equipped machine shop, business offices, and an engineering lab where I worked with two draftsmen, two very competent technicians capable of handling most technical projects, and one engineer responsible for the basic product line. In addition, there were areas for assembling and testing a variety of Wheatstone and Kelvin bridges, decade resistance boxes, telephone test equipment, and fixed and variable audio attenuators. All instrument switches and their component parts were built entirely in-house, as were the attenuators. The company suffered the stigma of running second-best to Leeds & Northrup in the instrument field and to Daven in the attenuator line, an image unfortunately reinforced by Shallcross's propensity to copy innovations of those industry leaders.

By the time I joined it for my first co-op assignment, the company was well established under the general management of Mr. Shallcross (popularly known as "Pappy") and his three sons. John Jr. had the most responsible position, under the dominance of his father, in his responsibility for Sales and Marketing; "Spike" was Production Manager, a job that seemed to suit him well, given the large number of females in his domain; and Dewees, a slow, feckless fellow in charge of the Engineering Lab. Thus, the company was very much under family control, a point not missed by the older employees, all of whom seemed to accept the minimal likelihood of their ever rising very far in company management. It was also a paternal organization with a company-subsidized "Sunshine Club" in lieu of a union, but it was generally acknowledged that "Pappy" took care of his faithful employees who might have personal health or financial problems. Even as a temporary employee, I was well treated, once being taken with the long-time "regulars" to the IRE Show in New York, that now-lamented extravaganza of electronic wares displayed by virtually every manufacturer in the business. What an enriching experience - and on top of it all, they gave me \$5 (about a half-day's pay then) for spending money!

# Something NEW




## A Resistance Unit

that embodies an entirely new development in construction — the only doubly-insulated, moisture-proof, wire-wound, non-inductive accurate resistor. 8/32 screw terminals permit its instant use in any type of circuit in any convenient manner as well as in standard grid-leak mountings or fuse-clip mountings or by soldering.


### The SUPER AKRA-OHM

besides containing all these unusual features has a very low temperature coefficient, a minimum distributed capacity. Made to dissipate one watt but will stand an overload without injury. Type 6-M has a tolerance of accuracy of approximately 1% plus or minus. Closer tolerances made on special order.

Complete stock of all values enable us to make immediate shipments. Full information and prices will be furnished promptly on request.



**Shallcross Mfg. Company**  
 ELECTRICAL SPECIALTIES  
 700 PARKER AVENUE  
 COLLINGDALE, Pa.  
(INCORPORATED)



QST, Sept. 1929

Before the power supplies left the lab for the Resistor Test Department, it was proposed by one of the more mischievous techs that we charge an 8-microfarad oil-filled condenser to 2000 volts and leave it on Dewees' desk. There were visions of the unsuspecting victim spying a capacitor where there had been none before, speculating on why it had been left there, then picking up - only to get zapped by accidentally touching the terminals. But then reality set in, when we realized this drama would be witnessed through a window that separated Dewees' office from the lab. The prospect of Dewees flinging the condenser through the window was rather sobering, so the practical joke was reluctantly abandoned.

My next assignment was to design and build an attenuator test set for a new product that could not be accommodated by existing production test equipment. My new test set consisted of a VU meter, four 600-ohm fixed attenuators, a precision variable attenuator, and several nifty telephone-type key switches to enable substitution of the calibrated attenuators for the unit under test. This project gave me an appreciation for the importance of low-impedance grounds when dealing with an attenuation of 100 dB! It also gave me an appreciation for difficulties encountered when dealing with people. The former problem was easily solved with a heavy



ground strip; the solution to the latter was more complicated.

Because the new attenuator test set was to replace one in regular production, the change-over had to be made on a weekend when the plant was closed. I went in on a Sunday afternoon, replaced the old test set with my new one, checked-out the new unit, and left a revised Test Procedure for use with the new fixture.

On arrival Monday morning, I was immediately escorted to the attenuator test room where the production foreman was angrily flipping switches, twisting knobs and yanking patch cords in a blind rage, cursing the #@\*\\* junior engineer who wrecked his test facility. At that moment, in walked none other than "Pappy" Shallcross! He got an earful from the foreman, then asked me what was wrong with my new fixture. For one thing, the foreman had made several wiring changes in an attempt to get it working the way he thought it should, then finally admitted he had not bothered to read the new operating instructions. Sanity eventually prevailed, and the new fixture performed properly when my original circuit was restored and the new Test Procedure followed. Later that day "Pappy" stopped by where I was working, slapped me on the back, and said, "Things got pretty hot this morning, didn't they? You did good." He made my day!

One afternoon toward the end of my co-op tour at Shallcross, two gents arrived in a car and dragged a large square box into the Chief Engineer's office. A few minutes later, we were summoned to the office where, resting on an odd-looking tubular cart, was a strange looking instrument. It appeared vaguely like an oscilloscope, but not like any we had seen before. This one was BIG, with the CRT located off-center, on the left side of the panel. Very strange. Further examination revealed that it did not have sweep-frequency or sync controls, although it did sport some unfamiliar ones designated Sweep Speed and Trigger. It was manufactured by a new company called Tektronix. The representatives said it had a vertical-deflection bandwidth of *10 megacycles* - more than 100 times better than any 'scope we had previously encountered. Unfortunately, it didn't fit the requirements of a d-c instrument and audio attenuator manufacturer so, the representatives left with their Model 511. Little did I realize, as they departed, that I would eventually spend the better part of a 40-year career peering into a Tektronix 511 oscilloscope and its many successors! *[Me too, to a lesser degree! - Ed.]*

There are occasionally times in the operation of a business when everything seems to go wrong at once. Today, a culmination of negative circumstances would result in a flurry of memos and perhaps some late evening meetings. But not at Shallcross! When that situation arose at Shallcross, it unleashed a furious rampage by "Pappy," which was usually preceded by someone running into the lab with the warning, "He's headed this way." With that, muffled shouting and counter-shouting could be heard from the Production Room, fully 200 feet and two closed doors away, as Spike was confronted by his father's wrath. Then, the loud slam of a door, and "Pappy" could be heard venting his anger upon the defensive machine-shop foreman. Thunderous footsteps, another door-slam, and a freight train of anger blustered from the shop through the lab and into the Chief Engineer's office, followed by a final door-slam and more shouting. When it was all over, "Pappy" returned quietly to his office, peace reigned, and there were solutions to every problem, all without one memo or an after-hours meeting!

Although tough with management, "Pappy" never harangued, pressured or demeaned the ordinary workers. He was very accessible and quite popular with the average employee. In fact, he seemed to exercise a moderating influence between workers and his lower management, who dared not be unfair, upon risk of being "reported to the boss," emphasizing the paternalistic character of the company. This seemingly close relationship was bolstered with periodic company dances, picnics, and a big Christmas party. The contrast between today's stifling climate of political correctness and the carefree life of yesteryear was never more apparent than when Christmas bonuses were distributed at Shallcross. "Pappy" personally walked through the entire plant, handing out the checks. When the recipient happened to be a comely young lady, he might extract a little "bonus" in return, always in the fun of the moment and to the delight of all.

By January 1950 it was time to return to Drexel for the final phase of my formal education. Shallcross offered me a permanent position but I was dissuaded from accepting by a desire to pursue a broader spectrum of technical challenges than existed there. A few months after my departure, events at the company brought my optimistic assessment of employee satisfaction into question, as a favorable vote for establishment of union representation tore down, in a stroke, the years of goodwill that had existed between the workers and the company. The strong-willed Shallcross family would (or could) not tolerate interference with the management of their company. They closed down the Collingdale plant and moved their entire operation to a more favorable labor climate in the Southland. The company was eventually absorbed by a conglomerate and gradually lost its identity, bringing to a close another notable chapter in American free enterprise. *Sic transit gloria.*