



OSCILLATOR

DELAWARE VALLEY HISTORIC RADIO CLUB

The Official Newsletter of the DVHRC

Editor: Ludwell Sibley

Vol. 4 No. 1, January 1996

THE MONTHLY PREZ

Mike Koste

Just when you thought you'd heard and read everything there was to know about the Henry Ford Museum Auction a few months back, comes a club exclusive! The DVHRC ActionCam was in Dearborn last October and at our January 9th meeting, NED BORGER and LEWIS NEWHARD will give us all an up-close-and-personal video view of some of the remarkable old radios that went on the block. You won't want to miss it, so get there early for a good seat.

Despite the ice and cold, we experienced an excellent turnout for the Christmas party in December. Once again, JOAN and the crew from up the street at the Hillside provided a lavish spread, supplemented by a wealth of Yule sweets contributed by the membership.

Last month also welcomed our newest members, WILLIAM R. JONES of Telford and WILLIAM ALLEN JR. of Ambler. A chorus of groans and guffaws accompanied our Ugly Radio Contest, won by BILL OVERBECK for a true nightmare of a novelty set that defies description. The association also gave unanimous approval to pay the MOLETIERRES for their hospitality. From here on, our \$50 per month "rent" will be paid by way of a mandatory \$1 member contribution at each meeting.

As a result of the 1996 Board of Directors elections, TONY MOLETIERRE joins PETE GRAVE, BILL OVERBECK, LUDWELL SIBLEY, and myself in calling the shots for the next twelve months. The Board will be meeting this month, probably before Jan. 9, to select officers, pound out a budget, make Special Committee nominations and develop a Mission Statement for 1996. We'll provide you with a brief summary of our conclusions at the next meeting.

Finally, "Mend Well" wishes to our benevolent editor, LUD SIBLEY, who's had a little stability problem with a ladder while painting his house, resulting in a broken leg. (Hey Sib -- next time, call College Pro!)

JANUARY: DVHRC DUES FOR 1996

With the New Year comes renewal, as Ol' Father Time slips away and the infant 1996 appears on the scene. A different kind of renewal occurs at this time, too: DVHRC membership dues for 1996. If your address label says '95," *this is the time* to slip a check for \$10 into the handy, enclosed envelope and mail to the club at PO Box 41031, Philadelphia, PA 19127-0031. That'll assure your continuing ability to look your fellow members in the eye, not to mention continuing receipt of the crusading home-town *Oscillator*.

UPCOMING MEETINGS

Tuesday, Jan. 9 and Feb. 13, 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., Flem-
ington, NJ 08822, (908) 782-4894.

For urgent items, we have a fax ma-
chine on this same number.

INDUSTRY NEWS

THE E. H. SCOTT HISTORICAL SOCIETY

For those not previously aware: the history and collecting of Scott radios is the special province of the E. H. Scott Historical Society, a nationwide group now in its fourth year. Scott sets - from the "World's Record" DX-grabbers of the '20s, to the lovely multiunit chrome-chassis AM-SW productions of the '30s, to the unique military models of WW II, to the top-quality AM-FM hi-fi receivers of postwar - have a special cachet and appeal. They're a subject deserving a dedicated club. The latter has ambitions of building a specialized museum in Scott's town of Chicago.

ON THE HORIZON

Jan. 16	NEARC Swapmeet, Nashua, NH (see A. R. C. for details)
Feb. 25	Greater Boston Area Radio Collectors "Radio XXVII," Westford, MA (see A. R. C.)
March 16	NJARC indoor swapmeet, Hightstown, NJ (details next month)

The Society produces the *Scott News*, an 8-1/2 x 11" glossy quarterly of eight tightly composed pages. The most recent issue contains a substantial original article by Marvin Hobbs (Scott's chief engineer during its "glory days") on the company's transition from pure "DX" sets to those of high fidelity. There is a crisp reprint of a factory article on the now-scarce 1932 All-Wave receiver, and a story on some recent detective work explaining that, contrary to photos published in 1932, there is no "Allwave 13" Scott.

Mailed with the *News* is a page of want ads. Focused solely on Scotts, these offer repros of '20s Scott blueprints, copies of Jim Clark's Scott collector guide, custom-loomed grille cloth in Scott pattern (from DVHRC's own John Okolowicz), repro capacitor assemblies, and recreations of Scott dial parts. The club itself offers complete packages of Scott factory repair documentation - far more detailed than the spotty Rider's material - at very reasonable prices of \$10 to \$17, depending on the set.

This society is pretty much "the network" for actual or would-be Scott owners. Dues run Jan.-Dec., so this is the best time to sign up. Yearly dues is \$20, to ESHS, 3712 N. Broadway #4450, Chicago, IL 60613.

*INDUSTRY NEWS

TRANSISTOR GUIDE UPDATED

The Bunis family, source of the popular Collector's Guide to Transistor Radios, announces a second edition, to be available in February. We have a review copy in the works and will report details on arrival.

*INDUSTRY NEWS

HELP SOUGHT FOR ZENITH BOOK

In the wake of their recent book on the Zenith Trans-Oceanic line of receivers, authors John Bryant and Harold Cones are looking for information on the Chicago Radio Laboratory - Zenith's predecessor company - for use in a chapter in the first of three books on Zenith history. Bryant and Cones are receiving major participation from DVHRC stalwart Bill Wade. Any new material would presumably supplement the classic CRL-Zenith coverage written by author Alan Douglas in his *Radio Age* series, and in his coverage in Radio Manufacturers of the '20s.

The authors are trying to determine which of CRL's products have survived and might be available for photographing for use in the book. They want to develop a list of all CRL models, and are looking for catalogs, manuals, or memorabilia. They promise confidentiality to those who wish same. Responses are requested, to "The Radio Professors," PO Box 592, Stillwater, OK 74076, by Feb. 15. Of course, it may be helpful to see Bill Wade at an upcoming meeting for details.

READER COMMENTS

Alton DuBois

[Bob Thomas'] review on the Heathkit book reminded me of a time, 25 or 30 years ago, that I got a call from a neighbor who had assembled a transmitter kit. I don't know what the make of it was, but he couldn't make the output tank coil load up.

I took my 60-watt test lamp along, and checked the circuit with a meter he had. The construction was OK, but I discovered that the tank tuning condenser was relying on the bearings of the rotor for continuity. Evidently the bearing grease on the condenser shaft was insulating it enough to disrupt the circuit. I took a piece of brass wire and coiled it into a helix. Soldering one end to the condenser frame and the other to the rotor shaft provided a more solid path to the frame. Putting the test lamp on the antenna leads, I estimated about 25 to 30 watts, which was about what it was designed for.

I got my Radiotelephone Second Class license back in 1947 when [tube] technology was up to date. Now it's considered bear-skins and stone-knives vintage. I renewed the license each time over the years and now it's a lifetime general class.

*INDUSTRY NEWS

NJARC GETS MONTHLY NEWSLETTER

The New Jersey club is enjoying a monthly newsletter of considerable spirit and vitality. Editor Marv Beeferman is in his fourth month with this enterprise, which is up to six well packed pages. Our best wishes for continued success . . .

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 NJARC's *Jersey Broadcaster* for double coverage.

WANTED: Phonograph-related items - top dollar paid immediately for Vogue Picture Records, wax-cylinder records, needle tins, Nipper, record cleaners, puzzles, advertising mirrors, pins, phonograph toys, posters, original advertising from Edison and Victor. Thanks! Bernie Seinberg, 714 Moredon Rd., Meadowbrook, PA 19046-1907, (215-886-6124. (1-2/96)

FOR SALE: RCA Radiola 18, works, \$60; Philco 40-190 console, \$100; RCA 100A speaker, cloth indented, \$20. Amy Lancaster, (215) 348-9654. (12-95/1-96)

WANTED: Circuit diagram and purpose for a Knight FM monitor receiver, model KG-220, 30-50 MHz, by Allied Radio, Chicago. [Nuts! - it's not in Sams. - Ed.] **MANUAL AVAILABLE:** I have an Electronic Measurements Corp. emission-type tube tester, model 205. It has a roll chart, the operating instructions are in a four-page typewritten document that includes settings for ballast tubes and also some additional settings for newer tubes, that was published in April 1957 *Radio & TV News*. Anyone needing copies, please sent \$1.00 for copy and postage. Alton DuBois, Jr., 67 Peggy Ann Rd., Queensbury, NY 12804, (518) 792-3130.

FOR SALE: The DVHRC tube program offers clean, tested, boxed tubes at very reasonable prices with availability at any club meeting. Proceeds go to the club. About 295 types are currently in stock. Of course, donations of radio-type tubes in any condition are welcome. See Charlie Class at any monthly meeting to obtain or donate tubes.

WANTED: Collins R-390 parts set or parts, dust covers, rack cabinet. Pick up within 100 miles of central NJ. Tom Provost, 19 Ivanhoe Dr., Robbinsville, NJ 08691, (609) 259-7634.

WANTED: AK 275 receiver in good condition. Bob Messerschmidt, 764 Backhus Estate Rd., Glen Gardner, NJ 08826-2205, (908) 832-6976, 8-11 PM. (1-2/96)

WANTED: Help! I need a good looking split-second robot dial face and shutters for Zenith 12S265. My black paint is peeling. Also looking for original-type grille cloth and belts for the same radio. Does anyone know what other models I could use a dial face from? Mark W. Hilliard, N3NBL, 921 S. Edward St., Allentown, PA 18103, (610) 432-8089. (12-95/1-96)

WANTED: Probe only for Heathkit IT-12 signal tracer. Diagram booklet for Heathkit V-6 VTVM. Working probe for RCA WV-97A VTVM. Stan Thompson, 43 Cozy Corner, Avenel, NJ 07001-1122, (908) 636-3630. (12-95/1-96)

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, 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!

AVAILABLE: From the "Tube Lore" talk at the Nov. meeting, the three-page "Tube User's Guide" handout. Send a 32¢ SASE to your friendly editor. (1-2/96)

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)

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.

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. Buf-

684 Forman Road
Building "B"
Souderton, PA 18964

(215) 721-3990




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falo'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.

AIRWAVES  **TIMELINE**
"This Month in Radio History" Compiled by Mike Koste

- 1902, Jan. 2** Nathan Stubblefield, who claims to have been broadcasting since 1892, makes a public demonstration of voice and music transmission in his home town of Murray, Kentucky.
- 1910, Jan. 13** Enrico Caruso sings over the Marconi Radiophone from New York City and is heard by wireless operators in Connecticut and aboard the SS Avon on the Atlantic.
- 1933, Jan. 15** To protect their claimed property rights, major phonograph companies begin to label their records "Not Licensed for Broadcast" . . . Meanwhile, Powel Crosley begins tests of his new 500-kW transmitter at WLW, Cincinnati.
- 1934, Jan. 1** Federal Radio Commission widens broadcast band by three new channels, 1530, 1550 and 1570 kHz, for experimental high-fidelity stations. (By 1936, 1530 is occupied by W1XBS in Waterbury, CT and W9XBY in Kansas City; 1550 is in use by W2XR in New York and W6XAI in Bakersfield, CA - all experimental licensees operating at one-kW power.) Meanwhile, KNX, Los Angeles announces a new plan to pay commissions to radio account executives for commercial spot sales.
- 1936, Jan. 12** The 120 members of the Distilled Spirits Institute agree not to advertise hard-liquor products on radio.
- 1938, Jan. 15** Major Edwin Armstrong begins construction of his experimental 50-kW FM station W2XMN at 44.1 MHz in Alpine, New Jersey.
- 1939, Jan. 1** After 15 years of litigation, Dr. Vladimir Zworykin is granted a patent for his iconoscope/kinescope tubes, the basis of electronic television.
- 1941, Jan. 7** The classic horror program "Inner Sanctum" premieres on NBC Radio.
- 1942, Jan. 5** Manila radio stations are dismantled and destroyed to keep them out of the hands of the invading Japanese.
- 1944, Jan. 17** Some 6000 radio broadcasting employees, nearly 1/4 of the industry, are in the Armed Services.
- 1945, Jan. 16** Much to the disappointment of Armstrong, FCC rules that the FM band must move from the 50-MHz area to 84-102 MHz (not today's 88-108). At one stroke, this obsoletes every FM transmitter, antenna, and receiver in the country. However, it does more than double the number of channels available. (Prewar sets with the "old" (42-50 MHz) band are highly collectible in as of 1996!)
- 1948, Jan. 5** WFIL-FM (now WIOQ) begins daily facsimile transmissions of *The Philadelphia Inquirer*, at 2:15 and 5:00 PM.
- 1951, Jan. 1** The Gillette Safety Razor Company buys six years of exclusive sponsorship rights for telecasts of the All Star Game and World Series for \$1 million a year.
- 1952, Jan. 7** Philco buys radio and TV coverage on NBC of the Republican and Democratic Conventions and election-night coverage for \$3.8 million . . . Admiral does the same on ABC for \$2 million.
- 1959, Jan. 1** 156,000,000 radios are in use in the US . . . about one per person.
- 1995, Jan. 1** Contrasting with the 1959 figure: 36 years later, estimates are over 575,000,000 in-use radios.

BESIDES THE SMITHSONIAN . . .

THREE SPECIALIZED RADIO-RELATED MUSEUMS IN THE WASHINGTON AREA

Gordon Symonds

Lifted ever so gently from the Ottawa Vintage Radio Club newsletter, Vol. 3 No. 4 (Dec. 1995)

For visitors to the Washington, DC area, there are three very good museums you should try to work into your schedule. These museums are located within an area of about 20 miles.

The National Institute of Standards and Technology museum (formerly the National Bureau of Standards, NBS), Gaithersburg, MD, is located just off I-270, about 20 miles northwest of Washington. Take exit 11 (Quince Orchard Rd.) to the west, turn left at the second light (Clopper Rd.), and then right at the next light

(Bureau Drive). The museum, which is in the Administration Building (the only tall building on the campus) is open normal business hours. Admission is free. Phone: (301) 975-2792.

The museum is in one room adjacent to the library, and features work of the Bureau since its inception in 1911, including early work on AC-powered radio (1922), radio beacons (1928), and blind-landing systems (1930). The museum covers the entire scientific field, and includes measurement standards, mechanics, electricity, optics, computers, and proximity fuzes.

A bonus to visiting the museum is a visit to the library itself, which contains a lot of material on early radio, some of it unique.

The **Historical Electronics Museum, Inc.** building is located adjacent to BWI, the Baltimore-Washington International Airport. It is off Route 295 (Baltimore-Washington Parkway) just north of the airport. Hours are: weekdays (except holidays), 9 - 3; first Saturday of each month, 10 - 2. Free admission, tour, and literature. Phone: (301) 765-3803.

This is a large museum dedicated exclusively to electronics. It contains a lot of exhibits, and the military radar displays are particularly noteworthy (radars and antennas from the F-16 and the huge AWACS are on display). They also have an SCR-584 radar from the PBS Nova series "Echoes of War." In addition, the museum has many early radio artifacts.

The **National Cryptological Museum** is also located on Route 296 (Balto-Wash. Pkwy), at the intersection of Route 32, near the National Security Agency building at Fort George G. Meade, MD. This museum is about 8 miles SW of BWI Airport. Hours are weekdays (except holidays), 9 - 3; other times by appointment. Free admission. Phone: (301) 688-5849.

It wasn't *that* long ago that the National Security Agency, which is similar in function to a combination of the Canadian CSIS and the Communications Security Establishment, would not even admit to its existence. With the end of the Cold War, shrinking budgets, and "re-engineering" of its operations, NSA has come out at last with a public persona.

This is a professionally done museum of the highest quality. It covers cryptology from the very start, and has many extremely rare and valuable artifacts. They have *all* of the models of the Enigma machine, including one which is working in case you want to try it out. Of course, radio played (and continues to play) an important part in this field. There are some unique examples of radio equipment from WW I.

MADE IN PHILADELPHIA; RESTORED in ELKHART

RESTORING PHILCO BLOCK CAPACITORS FROM THE EARLY '30s

Ross Smith

From News Letter - Northern Indiana Members of IHRS, Nov.-Dec. 1995

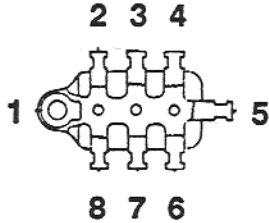
A few years ago, I circulated an article on restoring Philco radios, which included ideas for handling their black-bakelite fixed condensers (capacitors), I suggested saving the blocks and using the original lugs on top for connecting new capacitors or resistors. However, the old condensers inside the block had to be disconnected in order to prevent shorts or leakage in the new circuit.

The *first method* I mentioned was to remove the fine stranded wire leading inside the block by unsoldering and un-twisting the fine wire on the terminal tip with a sharp instrument and a soldering iron. Once the fine wire is removed, it can be pulled out of the eyelet center hole with a pair of pliers. If you are lucky, the wire will break off down inside the block. At least 1/4" of wire below the surface needs to be pulled out to be sure it is no longer connected to the eyelet.

If the wire breaks even with the surface, I suggested the *second method* of using a drill bit the size of the eyelet hole and drilling deep into the block in order to remove the wire. I discovered this year, after restoring Philco Models 20, 51, and 60, that drilling into the eyelet hole *does not insure that the old wire is disconnected*. Sometimes metal shavings or the twisted wire will remain connected to the old shorted condenser. It is better to use a new terminal strip or drill the entire rolled-over top of the eyelet, break the terminal loose from its mounting, and let it float free from the block, held by the original heavy wires. *Before adding new capacitors* to the outside of the block (or the inside, if you wish), make a sketch of the original circuit so that you will know what is inside the block. Tracing each terminal with the schematic is highly recommended. The chart below will help you know what each block contains. Remember that some blocks include fixed resistors, as listed in the chart.

PHILCO BYPASS-CONDENSER DATA - TYPICAL UNITS

To remember the lug numbering, think of the block as a tube socket with ground on Pin 1. Units with * next to their letters (e. g. 3615-AF) have dual condensers.



3793- type (0.015 μ F)

Letter	Lugs Used	Cond. on	Resistor
B	5, 7	5-7	-
C	2, 4	2-4	-
D	2, 6	2-6	-
E*	1, 5, 7	1-5 & 1-7	-
F	5, 7, 8	7-8	-
G	2, 3, 6	2-6	-
H*	1, 3, 5	1-3 & 1-5	-
J	2, 5, 7	2-5	-
K*	1, 3, 5, 8	1-3 & 1-5	-
L*	5, 7, 8	7-8 & * & ?-?	-
M*	5, 7, 8	5-8 & 7-8	-

3615- type (0.05 μ F)

Letter	Lugs Used	Cond. on	Resistor
B	1, 3, 5	1-5	250 Ω , 3-5
C	1, 5, 7	1-5	250 Ω , 5-7
D	1, 3, 5	1-5	-
E	2, 5	2-5	-
F	2, 3, 5	3-5	-
G	5, 8	5-8	-
H	3, 5, 8	5-8	-
J	1, 5, 7	1-5	-
K	3, 5, 8	5-8	250 Ω , 3-5
L	1, 5	1-5	-
M	2, 5, 7	2-5	-
N	1, 4, 7	1-4	-
P	1, 4, 7	1-4	250 Ω , 4-7
R	1, 5, 7	1-5	250 Ω , 5-7
S	1, 4	1-4	-
T	1, 5, 7	1-5	150 Ω , 1-7
U	1, 5, 7	1-7	-
W	1, 2, 5	1-5	-
X	1, 2, 5, 7	1-5	150 Ω , 1-7
Y	1, 2, 5, 7	1-7	150 Ω , 1-5
AA	1, 3, 5, 8	1-5	-
AB	1, 4, 7, 8	1-4	-
AC	1, 5, 7, 8	1-7	-
AD	3, 5, 8	3-5	-
AE	1, 7, 8	7-8	-
AF*	4, 7, 8	4-8 & 7-8	-
AG	1, 3, 5	1-5	-
AH	1, 5	1-5	-
AJ*	1, 3, 6, 8	1-3 & 1-6	-
AK	1, 5, 7, 8	1-7	-

3903- type (0.01 μ F)

Letter	Lugs Used	Cond. on	Resistor
F	3, 5	3-5	-
G	2, 4, 7	2-4	-
H	5, 8	5-8	-
J	2, 5, 7	2-5	-
K	1, 2, 4, 7	1-7	-
M	4, 7, 8	4-8	-
N	3, 5, 8	5-8	-
P	2, 5, 7	2-7	-
R	4, 7, 8	4-7	-
S*	1, 5, 7	1-5 & 1-7	-
T	5, 7, 8	7-8	-
U	1, 2, 5, 7	1-7	-
W	2, 4, 7	2-7	-
X	3, 5, 8	3-8	-
Y	3, 5	3-5	-

4989- type (0.09 μ F)

Letter	Lugs Used	Cond. on	Resistor
B*	1, 3, 5	1-3 & 1-5	-
C*	1, 5, 7	1-5 & 1-7	-
D	1, 5	1-5	-
E	1, 5, 7	1-5	250 Ω , 5-7
F	1, 5, 7	1-5	-
G*	1, 4, 7	1-4 & 1-7	-
H*	1, 4, 5	1-5 & 4-5	-
J	3, 5	3-5	-
K*	3, 5, ?	3-5, ?	-
L	3, 4, 8	4-8	200 Ω , 3-8
M*	4, 7, 8	4-8 & 7-8	-

TOMMY AND THE MIDGETS

Servicer, in *Service* magazine, Oct. 1945.

They used to tell me that it was the early bird that got the worm, and for a long time I used to see birds getting worms at all hours of the day, and hence got to thinking that perhaps there was not much to that old adage. But when I heard about what Tommy had done, I found that the story had a ring of truth to it after all.

While I don't visit Tommy's store very often - it's way over to the north end of town - I had been bumping into that

young man every now and then in the oddest places. Once I saw him in the poorest section of town. He was carrying two broken-down midgets, one under each arm, and yet he shouted a cheery greeting. We stopped and talked, and he told me that he had just bought the midgets for \$2 each. Both looked quite awful. The cases were half gone and parts were spilling out. I said nothing except that I couldn't imagine how he could salvage anything from those ancient

sets. Tommy just smiled, and said that he had an *Idea*, with a capital *I*.

Then later in that week I ran into Tommy coming out of our bank president's home. Again he had a couple of midgets under his arm. They were not the ones he had bought in the other part of town, either. He told me he had paid \$1 each for them. But he had also repaired the president's fine parlor console. Net result for the call, said Tommy, was a profit of about \$12 even after paying for the midgets. But, whispered Tommy, that still wasn't the *Idea* he mentioned earlier. So I was more puzzled than ever.

A little later I met Tommy coming out of our best restaurant. This time he had, or was trying to juggle, about five midgets. And their condition was bad, very bad. I asked him how he found all these museum pieces in the restaurant. He told me that the owner had been telling his customers, especially those who came in regularly, that they should leave their midgets with him and that Tommy would pick them up and pay for them at a maximum rate of \$2 each if they had all their parts and tubes, even if they would not play and even if they had broken cases.

My curiosity was so aroused that I finally had to ask just what this idea was all about. He asked me to hop into his car. He would take me over to his shop where we could talk.

Well, you should have seen the midgets he had collected. They were all over the place. Guess there must have been at least a hundred. They were of all kinds. And it seemed that there wasn't one there that could play at all.

Tommy also had a large assortment of the oldest-timers you have ever seen. These, too, were in a sad state of disrepair.

"Now, Tommy, what does all this mean?"

"Gonna sell 'em," he replied.

"How in the world do you expect to sell all that junk?" I countered.

"Well," Tommy went on, "I can do quite a bit with these sets. They may not sound so good, but that won't matter, for the use for these sets is such that the sound doesn't have to be too good. And the appearance isn't important either, because the listeners won't care one way or another. Guess I'll get rid of at least 50 of them tomorrow. Want to help me fix them a bit, and I'll declare you in for some of the profits?"

"I guess so," I said. Frankly it was all quite a mystery - tone unimportant, appearance secondary!

We worked the rest of the day fixing up the sets. They just had to be able to receive the local station only, said Tommy. We did everything for that. Regardless of how the set worked on other stations, we concentrated on that local station and peaked the sets so that it came in loud, even if not too clearly.

After 10 PM, we took some time out for a bite, and then went back to work again. Soon we had about 50 of the midgets fixed so that they received the local station very well.

Then Tommy came over and told me to take off the tuning knob and saw the tuning shaft off flush with the cabinet (if there was one) or with the edge of the chassis (if there was no cabinet). That got me; how were they to be tuned?

Nor was that all; Tommy then flattened each shaft on one

side with a file and we loaded the sets into his car.

"Meet me at 4 AM tomorrow," Tommy said, "and I'll show you how to get \$10 for each one of these, and pick up some extra work, too. Bring your tools and portable testers!"

Well, rising at that early hour wasn't the easiest thing to do, but I managed to make it by the skin of my teeth. Tommy was already sitting in the car, waiting with the motor idling, when I dashed up.

"How about some food?" was my first question.

"Show you where you'll get the finest breakfast you ever tasted. But first you'll have to be patient. It may take quite a while," Tommy said. "OK," I grumbled.

We turned out into the country and soon we were riding along nicely through the crisp morning air. It was really good to see the sun rise over the low hills, and I must admit that it had been a long time since I had seen that.

Soon Tommy turned off onto a dirt road and we drove, smoking our cigarettes in silence. Suddenly around a bend we came upon old O'Reilly's farm and Tommy drew up in front. Mr. O'Reilly was standing there looking at his hired hand fetching some kerosene out of the tank in the yard.

"Morning, Mr. O'Reilly," said Tommy.

"Morning, Tom. Well, I see that you got here just in time for breakfast. Who is that with you, your helper?"

"Sort-of," Tommy rejoined, "and we're both hungry as bears."

Well, we went into the kitchen where we had the best breakfast I had tasted in many a year. I was still curious as to what Tommy had up his sleeve about the midgets, when Mr. O'Reilly suddenly asked, "Bring the sets with you, Tom?"

"Sure thing."

"Well, let's get out into the barn and set them up."

So that was it! Seems like Tommy had found out that the cows liked music and might give a bit more milk or something like that. Tommy had gone to the trouble to ask the State College of Agriculture to verify and they had written him that, while they couldn't be sure it always worked, it was well known that animals were more docile under the tones of music than without, and it certainly would not do any harm.

So Tommy had canvassed the farms around the town and had sold the farmers these old sets for a flat \$10 each installed. Since there was no reason to tune them, and since the cows were not too particular about the set's appearance, it was only necessary to find a set that would receive a station. With the flattened shaft they could be adjusted just enough to be tuned right on the nose.

The taking-off of the tuning knobs prevented the farmers from tuning the sets to other stations which might not come in as well, and at the same time Tommy made it clear that the sets were supposed to be used with only one station.

We left Mr. O'Reilly's with \$70 in our pockets, and seven sets sold and installed. Also, Tommy stopped to fix their console, which netted him another \$7.50.

It was dark when we returned to the store. Every set had been sold. Tommy got out a sheet of paper and figured. We had taken in \$500 for the sets, and a little over \$97 for the service work. Solemnly he handed me \$100 for my day's efforts.

Nice work if you can get it!