

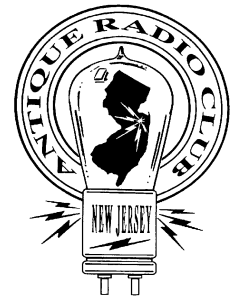


The Jersey Broadcaster

NEWSLETTER OF THE NEW JERSEY ANTIQUE RADIO CLUB

June 2007

Volume 13 Issue 6



**MEETING/
ACTIVITY
NOTES**

Reported by Marv Beeferman

THE ON-LINE BROADCASTER

The New Jersey Broadcaster is now on line. To date, 80 of your fellow NJARC members have subscribed, saving the club some \$1,400 per year. Interested? Send your e-mail address to: mbeeferman@cs.com Be sure to include your full name!

Feedback from Part I of the "Miller Auction" was very positive and its location at InfoAge gave members a chance to witness first hand the progress being made at the NJARC Broadcaster's Hall of Fame museum. Some of the more sought after items included an AK model 19 for \$90, a Johnson Ranger II transmitter for \$150, A Western Electric 25-B amplifier with two 105D tubes for \$70, a homebrew time signal receiver with a Silver Marshall 112 KHz amplifier for \$100 and a 13-tube mounted tube display for \$110. Check out the Part II auction list in this month's *Broadcaster*; I'm sure you'll find some even more exciting items that will be offered at the June meeting.

Last month we reported on the unexpected nor'easter that left 20 inches of water in the Sarnoff Library basement storage area. The result was that some 600 cubic feet of lab notebooks, technical reports, manuals and manuscript collections were left soaking. Executive Director Alex Magoun would like to thank the club and its members who contributed a total of \$1575 to the flood fund; this, and the collective support of the radio, TV, electronics and broadcast communities who pitched in from across the country (and England) made a big differ-



MEETING NOTICE

The next meeting of the NJARC will take place on Friday, June 8th, at 7:30 PM at the David Sarnoff Library in Princeton, NJ. Contact President Phil Vourtsis at (732)-446-2427 or visit us at <http://www.njarc.org> for directions. This month's meeting will feature Part II of the Miller auction; a full list and photos of some of the items being offered are included in this month's *Broadcaster*. Remember - this is a "member's only auction" and you must be in good standing (dues paid) to participate.

ence.

Document Reprocessors, the company hired to "freeze dry" and restore the material, returned 510 cartons in mid-May. Alex reports that although some of the material appears a bit bent, the pages are separated and the ink didn't run. But in some ways, the hard part has only begun. The boxes now have to be organized and a grant proposal needs to be developed for

his needs for some well-deserved support.

This month's *Broadcaster* will include the second installment of "Whatever Happened to the Electronics Hobbyist?" One of the ways to pass on at least the nostalgia, if not the interest, in a hobby that is slowing dying is to participate in the NJARC Crystal Set Seminar. This event will give you the opportunity to experience the magic of crystal set building and perhaps share it with the younger generation.

The club will supply a kit of parts and technical assistance to construct the NJARC "Pretty Good Xtal Set" designed by our Technical Coordinator Al Klase. Participants will wind their own tuning coil and assemble approximately ten components into a working receiver. Children 10 and older, accompanied and assisted by an adult are welcome. If you have hand tools such as wire cutters, long-nosed pliers, screwdrivers, a soldering iron, etc., bring them along.

The date is June 23rd and the location is the InfoAge Science/History Learning Center on 2201 Marconi Road in Wall

Township. General admission is free, but there is a \$15 participation fee for each crystal set kit. The number of kits is limited, so please contact Al Klase (al@ar88.net, 908-782-4829) to reserve a kit. Registration opens at 9:30 AM and an orientation will follow at 10:00. The seminar



On Thursday, March 22nd, Columbia University honored two of its famous alumni, Michael Pupin and Edwin Armstrong. The ceremony was attended by member Dave Terwilliger during which the above busts were unveiled. We'll try to carry a full article in next month's *Broadcaster*.

shelving, cataloging, climate control, etc. The David Sarnoff Library board of directors has agreed that the funds raised beyond the cost of freeze drying will be dedicated to this purpose. But this will be an even longer-term project than the rescue, and Alex will keep us informed of

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will run until 4:00 PM. Bring a bag lunch or chip in for pizza. Those not building radios are welcome to drop in at any time to check out the performance of their own crystal receivers or to volunteer as assistants.

NJARC member John Dilks (K2TQN) reported on the Reflector about a friend of his from Boston who offers a restoration service that we all might want to think about. Dan Rasmussen (dan@retrotronics.com) specializes in reproduction backs for antique radios. Dan says that he meticulously creates a computer representation of radio backs from original backs or by working closely with collectors who have original radios. He then uses state-of-the-art laser equipment to cut out an exact duplicate of the original from appropriate material.

Dan currently offers over 80 unique radio back products and carries backs for well over 100 of the most collected radio models. Latest additions include backs for the RCA World's Fair, Zenith 7S529, Stewart Warner Campus and Varsity, and the Stellar Mantle/Maris. Dan says that his most popular radio back is the Hallicrafters S-38.

Also from the Reflector comes a posting by Nick Senker for new NJARC club members and for non-engineers like himself interested in repairing and restoring antique radios. He has come across an "excellent book that is very understandable without a lot of math or theory." His recommendation is "Old Time Radios - Restoration and Repair" by Joseph Carr and published by Tab Books (1991). It's available from Greenbrook Electronics for \$19.95 and other outlets catering to the antique radio restorer. Another club member, Dave Sica, notes that it "was probably the single most useful book I ever read on the subject!"

UPCOMING EVENTS

6/2: Members-only Repair Clinic; David Sarnoff Library, 10 AM

6/23: Crystal Set Seminar (see this month's *Broadcaster*)

7/28: NJARC Summer Tailgate Swap-meet at InfoAge; 8:00 AM - 1:00 PM (vendor setup at 7:00 AM.) Bring your own tables; a \$5.00 buyer donation is suggested.

**RESTORING A
DYNACO ST-70
TUBE AMPLIFIER****By Sal Brisindi**

I was always interested in tube audio and used a Lafayette LA-250 integrated tube amplifier for years. There was something about a Dynaco ST-70 that appealed to me. Maybe it was the chrome chassis, the brown steel cage covering the tubes or just the way it looked. I finally went on a hunt to purchase a complete Dynaco setup - an ST-70 amplifier, a PAS-3 tube preamp, an FM-3 stereo FM tuner and a pair of A-25 speakers.

The first item I found was the ST-70 amplifier. I checked eBay and missed out on a few, but finally located one in Albuquerque, New Mexico that was offered on Craigslist.org.

After negotiating a price with the seller, the ST-70 was mine. I eagerly waited for it to show up via UPS. The day finally came and I opened up the box. The seller had removed and wrapped each tube individually and numbered them so I would install them in the correct sockets. I carefully unwrapped and installed the tubes, connected my CD player directly to the input, hooked-up vintage Lafayette speakers and turned on the power.

The amplifier sounded great. There was a very slight hum which was only heard when the music was not playing. That would get taken care of after I replaced the filter capacitors. I did check and correct the bias, which was set too high, with a slight turn of the bias potentiometers.

The nice thing about the amplifier is that is all-original except for the four replaced coupling capacitors. The trans-

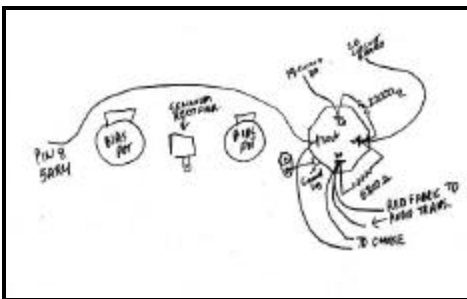


formers still have their desired cloth-covered wires. The chassis chrome is surprisingly in good condition and the printed circuit board is original. Note the front with its two RCA jacks, a stereo/mono switch and the two octal sockets for powering preamps. If you connect a meter to pin #8 of the socket, you can measure the EL34 bias voltage.



With the cover removed, note the four large outer EL34's, the two smaller 7199's and the 5AR4 rectifier. In front of the center transformer are the 10Kohm potentiometers used to set the bias for the EL34 audio power tubes at 1.56 volts.

My first order of business was to replace the quad filter capacitor. Lucky for us ST-70 owners, you can buy a replacement for about \$40.00 including shipping. Before I unsoldered any wires from the capacitor, I drew the following picture:



There were about 8 wires and 2 resistors to unsolder and I did not want to make any wiring errors. I carefully unsoldered the wires and resistors, twisted the tabs that hold the capacitor in place and with a little force, the capacitor lifted off the chassis. While the capacitor was out, I measured its capacitance with my meter and found two 20mfd sections open; hence, my slight hum problem. Installing the new capacitor was no problem, I just reversed what I did and compared the wiring to the diagram I drew.

The left photo shows the capacitor re-

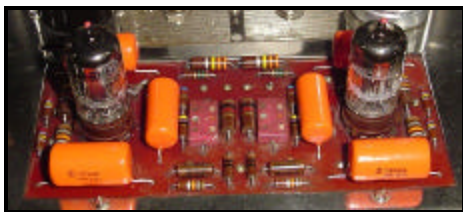
moved and the right photo shows the new quad capacitor mounted in place and wires soldered to it.



My second step was to replace 6 of the 8 capacitors on the printed circuit board. As you can see from my picture, I replaced the three capacitors that are around each of the 7199 tubes; the two mica capacitors in the center were left as-is.

I used Sprague 715P orange drop capacitors. Dynaco did not use a high quality circuit board and you have to be very careful as not to heat the board too much or you will lift the copper traces. The good thing is there are many companies out there that sell replacement boards. Some are direct replacements and others are modified and claim to make the ST-70 sound better. I think my ST-70 sounds great as-is and I want to keep my amp totally stock, including the board.

One-by-one, I unsoldered the capacitors, but since someone already replaced the caps some time back, the traces started to lift. Fortunately, the damage was not so bad that I was able to repair the board with no further problems. Here is a top view of the board with the replacement capacitors:



My third step was to replace the bias selenium rectifier with a 1N4004 diode. A nice feature of the ST-70 is you can set the bias for the left and right tubes as a pair. You should set the bias when you replace the tubes or when the tubes get older. I was able to set bias with the selenium rectifier as-is, but my bias potentiometer was at one end of its travel. The bias selenium rectifier is the small half-inch square component mounted between the two 10Kohm bias potentiometers as shown.

I soldered the diode on a terminal strip, left the old selenium diode in place

but disconnected the wires from it and soldered them to the new diode. I used the same mounting screw for the selenium rectifier to mount the terminal strip. Now my bias can be set correctly (1.56 volts) towards the middle of the bias potentiometer.



There are 2 electrolytic 50mfd 70 volt capacitors in the bias circuit I did not replace as they tested good. When I place another capacitor order, I will get new ones since all the old electrolytic caps should be replaced anyway. They are located below the left rear audio transformer under the chassis and easily replaceable.

I have to say that after replacing the capacitors, setting the bias and connecting my Dynaco preamp, tuner and speakers, this system sounds awesome. The amplifier is rated at 35 watts per channel and that is way more than my ears can handle at this stage of the game. The Dynaco A-25 speakers are another amazing item. They are not very large at all, measuring about 20" high, 11" wide and 10" deep but they have big speaker sound. I was very fortunate to get mine from a friend who no longer needed them.

In conclusion, the ST-70 amp is very easy to restore since it uses a limited number of capacitors. As time permits, I will be also restoring my tuner and preamp, writing restoration articles as I go.



NJARC MILLER ACTION: PART II (Compiled by Ray Chase)

Item Number	Description
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NOTE: Many of these sets and parts are very dirty; we could not take the time to clean them up. But look beneath the surface and you will find that many will shine up nicely with some simple TLC.

1. MCA Minerva 410 brown plastic "all American 5"; insides rusty but case is solid, no cracks. Missing knobs & back. This set was missed in the first auction.
2. Atwater Kent 94 chassis only with tubes; bottom plate is unattached.
3. Tungar battery charger with bulb, poor
4. Box lot, Hudinco YA -112 stereo amp (who ever heard of Hudinco?) plus 2 small speakers; one is PM other has field coil and an unknown audio amp with 12V6's.
5. New Old Stock Staco 2.25 amp. Variac; just right for radio testing.
6. Box of about 12 panel meters, poor.
7. Homebrew power supply; heavy, ultimate in solid construction & copper shielding, with a globe 80 tube. You'll never see another one like this.
8. RCA "Red Book" service manuals (8). Decent shape, to be sold choice: 1923-28, 1929-30, 1933, 1935, 1936, 1937 (poor), 1939, 1940.
9. Tubes; large box of glass octals, G's, GT's, mostly ST.
10. RCA Radiola III with one WD-11 that has an open filament.
11. Atwater Kent E2 cone speaker; paper and grill cloth gone, driver has continuity.
12. New Old Stock Hammond 6.3 volt 2 amp filament transformer.
13. SW-225 high voltage antenna changeover switch or reversing switch.
14. Heathkit RS-1 resistor substitution box.
15. Weston 433 50 amp AC ammeter.
16. RCA WT-509A Color/B&W picture tube tester; suitcase style with instructions.
17. Box lot; parts, tubes, etc., "the good, the bad & the ugly," could be treasures in here-you sort it.
18. Tubes, box lot; 100 big pin tubes, no eye tubes, 201's or 2A3's, look to be good.
19. Tubes, large box; misc. tubes, octals, loctals, miniatures, many in cartons.
20. Philco 39-25 console; it's all there except the usual deteriorating push buttons.
21. RCA C-4 10 tube console; seems to be all there except for the speaker.
22. Set of stained glass pieces; not radio parts but good if you want to make a window.
23. Tubes, box of 100 big pin tubes; many globes, not tested, no eyes tubes, 201's or 2A3's.
24. Eight hard cover books and batch of QST's.
25. Tubes, box of 37 big pin tubes.
26. Pathe' crank victrola; nice, seems to be all there, motor runs.
27. "Witches Hat" tall horn for cylinder machine; poor.
28. Lot of 5 Beitmans Most Often Used Radio Diagrams: 1942, 46, 47, 48 (2).
29. Books, 14 hard cover, fair to poor.
30. Large pile of vintage sheet music.
31. Remler type 300 tube control box; screws missing, carbon element missing from rheostat; none-the-less, a historic piece.
32. General Electric TC-3 tube tester; poor, no case or charts, parts set. Note odd 5 pin miniature tube sockets.
33. Large telephone magneto.
34. Willard wet cell B battery, 24 volt, wood case, very nice. See copy of QST ad with it.
35. Empty battery set case, no panel.
36. Large box of various radio magazines.
37. Riders manuals (8); good condition, to be sold choice; I, III, IV, V, VI, VII, VIII, IX.
38. Riders manuals (3); II, III, III, no bindings, may not be complete, sold choice.
39. American Bosch 5A wood case, missing knobs, fair.
40. Chelsea Radio Co. 1 tube set; no tube, nice set.
41. Olympic Continental, German table set; missing knobs and back.
42. Magnavox R3 horn driver base, no horn.
43. Sony portable battery case, probably for a TV.
44. Box lot, many tubes; mostly miniature, old Dumont "A" eliminator made by Dubilier Clock Co., NY, successor to Dumont Electric Co., poor. (must be some interesting history there). Large box of 5 position large terminal strips, etc.
45. Tubes, large box lot; octals, loctals, some big pin, quite a few sweep tubes.
46. Weston 689 low range ohmmeter in leather case; complete with locking key & leads. Looks new, has original Ray-O-Vac D cell installed that has not leaked or corroded.

47. Large box lot of misc. tubes, parts, resistors, capacitors; you name it, it's probably there.
48. Box lot of many soft cover books, magazines, tube manuals, etc., fair to poor.
49. Kellogg RFL AC set with inductive tuning; uses five 401 tubes, top is separated from case, poor condition.
50. Box lot magazines & hard cover books. Heathkit application bulletins, interesting 1935 book on sound.
51. Interesting lot. Early electric bell, crystal detector, Turner crystal mike (no stand), small album of records, glass plate slides, 5 socket adaptors, empty Western Electric 239A tube box, early telephone receiver and some interesting paper pamphlets.
52. Victor R-32 console radio, 2 chassis, good condition
53. Large box glass tubes; all shapes & sizes, mostly octal & an Emerson solid state clock radio.
54. "The O'Neil" ornate cone speaker; condition of driver unknown.
55. RCA Radiola "drop-in" panel set; uses five UX-199 tubes (not there), looks to be the equivalent of a Radiola 20, nice condition.
56. Box lot of tubes, parts & vibrators. Has a couple of nice NOS power transformers.
57. Tubes; EL-1C thyatron by Electronics Inc. of Newark, not tested - RCA white base 807, good - Western Electric 350A, tested as 807, good - two globe 81's, good filaments - globe 45, tests weak - globe 310, dud.
- 57A Tubes; three 01A's, good - 01A dud - three 30's, good - Western Electric 239A, good - Western Electric 239A dud - unbased tube, looks like a 239A, not tested - empty Western Electric 239 box.
58. Tubes; 24A, dud - 24A, good - three 171A's, two good, one low - three 112A's, two good, one dud - ST 45 dud - ST 45, good - ST 47, low - 227, good - GE photocell - five 6U5 or 6E5 eye tubes, only one has dim display, others NG - two 6G5 eye tubes, poor.
- 58A Tubes; five Arcturus Blue 27's, all test good.
59. Tubes; Western Electric VT-2, nickel base, marked Signal Corps, good filament, gold buttons on pins, some darkening of glass - brass base tip top 201A, good filament - RCA brass base tip top, looks like a 200, good filament - brass base tip top tube marked O-T-Power Tube, smeared printing, looks like a bootleg 201A, dud.
60. Box lot; DeWald audio pre-amp (in parts), homebrew crystal set (no crystal), Porta-Power AC supply for battery portables, Zenith Royal 675 transistor in good shape, Music Master Ware dial (who bought that Ware set last month?), bag of knobs, 4" NOS speaker.
61. Echin condenser leak tester, has a 71A tube & a neon bulb.
62. Freshman G-60-S power supply; looks like a "B" eliminator, has a globe 80.
63. RCA 6-RF-9 wood table AM/FM set, good.
64. Box of about 5 old headsets.
65. Heath Radiant Five six tube three dialer neutrodyne battery set; resistance coupled audio stages, no tubes otherwise it's all there but kind of poor shape.
66. Hallicrafters SX-28A receiver. All there but pretty rusty, a project for a dedicated restorer or good for parts.
67. Atwater Kent 45 green metal "coffin" set; no tubes, fair.
68. General Instrument Corp. "The Unparalleled Receiver" six tube battery set; no tubes, good condition.
69. RCA 45X17 wood table set on a home brew turntable. Very nice set.
70. GE/RCA type AA1520 three tube RF amplifier; normally part of a Radiola VI, no tubes, nice condition.
71. Thermodyne TF-6 battery set in drop-front case, with tubes, very good condition.
72. McMurdo Silver 15-17 chassis with speaker; no cabinet, very dirty, chrome is fair to good.



Willard wet cell "B" (24 volt) battery



RCA Radiola "drop-in" panel set (equivalent to Radiola 20?)



Pathe crank victrola



McMurdo Silver 15-17 chassis with speaker



Radiola III (WD-11 has open filament)

Homebrew power supply; copper shielding with globe 80 tube. ("You'll never see another one like this.")



GE/RCA type AA1520 RF amplifier; part of Radiola VI



RCA "red book" service notes

OF RABBIT EARS AND i-PODS

Edited by Marv Beeferman

When it comes to changes in electronic technology, sometimes the pendulum swings in both directions. Consider buying an antenna for a high-definition TV; seems as out of place as using a rotary phone to make a call (which I still do). But some people are spending thousands of dollars on LCD or plasma TVs and hooking them up to \$50 antennas that don't look much different from what some of us remember as being on the top of our black-and-white antiques.

You might be surprised that local TV channels, broadcast in HD over-the-air, offer superior picture quality over the often-compressed signals sent by cable and satellite TV companies. Compression involves removing some data from the digital signal. This is done so that the providers will have enough room to send hundreds of other channels through the same cable line or satellite transmission.

Although there are some limitations, people who can get a digital signal from an antenna can wind up with an excellent picture, free of the snow and fuzz of an analog signal. Depending on where you are, HD over-the-air can even be received with rabbit ears.

Indoor antennas are recommended for people within 25 miles of a station's broadcast tower. An outdoor antenna will grab a signal from up to 70 miles away as long as no mountains are in the way. The Consumer Electronics Association Web site <http://www.antennaweb.org/> tells how far an address is from towers and recommends what type of antenna to use.

An upside of antenna use is you don't have to pay a satellite provider extra for local broadcast channels (my kind of upside). But only local channels are available, meaning no ESPN, TNT, CNN or Discovery Channel. But you could partner an antenna with cable or satellite service.

HD antenna prices range from \$20 to \$150 for indoor and outdoor versions. The many models of available indoor antennas look more like a fleet of spaceships than the rabbit ears of old. But those of us

interested in saving a buck and who have a little MacGyver in them (wonder who that could be?) could go the cardboard, tinfoil, wire baking sheet and clothes hanger route. Some of these have been reported to work brilliantly.

In his ST-70 restoration article, Sal Brisindi noted that he fell in love with the "awesome" sound of his Dynaco system. But for most people, high fidelity has taken a backseat to portability. With their ability to store vast libraries of music in a pocket, sleek digital music players have replaced bulky home stereo systems as the music gear of choice. But, alas, the sound quality of digital audio files is noticeably inferior to that of compact discs and even vinyl.

Are these the final days of hi-fi sound? Judging by the 2 billion songs downloaded from iTunes, the ubiquity of white iPod "ear buds," and the hundreds of thousands of folks file-sharing for free, the answer is most likely yes.

The warmth and the nice distortion of the album has been sacrificed for the convenience of carrying thousands of songs in a gadget smaller than a pack of cigarettes. But a song ripped from a CD at 128 kilobits per second (the default setting for most software) retains only a fraction of the audio data contained on the originally mastered disc. And regardless of how advanced your home audio setup is, if you're pumping a low-rate MP3 or iTunes file into it, you're getting a low-rate rendition of the original song out of it. It's listenable, but still lacking the luster of a CD played on the same system.

So Sal, and all you other non-casual listeners, please don't trade in that quality sound for those dumbed-down MP3 files, even though they're digital and portable. After all, a lot of Ph.D.s went into making 128 kbps work well and sound well.

In part I of this series, we discussed how electronics used to be one of the greatest hobbies ever, supported by over a dozen magazines and numerous parts and kit suppliers. We also discussed how the path from hobbyist to technician or engineer is disappearing, if it hasn't already dissolved entirely. And finally, we tried to clarify what an electronics hobbyist is. In this installment, we'll try to answer the question "What happened to him?"

The hobbyist has not disappeared entirely, but the ranks have thinned considerably. It is suspected that today there are probably less than a quarter of the hobbyists than there used to be. A best guess is that the hobby era peaked some time in the 1980s. Most of the magazines died out by the early 1990s - the same time most of the kit companies started to fade away. The demise of those businesses directly affected the number of current and future hobbyists and engineers.

Perhaps the number one reason why the electronic hobbyists has declined is the introduction of the integrated circuit. If you are questioning this premise, consider the following. In the beginning, ICs made electronic hobbying fun and productive. You could build ever larger and more complex projects without extensive knowledge. But ICs, on their way to fulfilling Moore's law over the years, got smaller in size but with larger transistor counts. Digital speeds increased from a few MHz to over hundreds of MHz, and today, to many GHz. Analog circuits also improved in performance and operated at higher frequencies. Packages got smaller and the ICs with pins for through-hole PC boards have evaporated. Surface mount ICs are the norm today, as are surface mount discretes that are about the size of a grain of rice.

Have you ever tried to breadboard a circuit or build a project with surface mount parts? Fun, isn't it? You need tweezers, a magnifying glass, and a tiny heat-controlled soldering iron. And with pin spacings of a mm or less, it is easy to short out a few pins or miss a pin entirely. And how do you solder a ball grid array IC?

The size and build problem was foremost in killing home-build projects. Even today, the few electronic experimenters still around routinely use many of the parts from yesteryear, with pins that can be soldered or plugged into breadboarding sockets. Why are there so many 555 tim-

WHATEVER HAPPENED TO THE ELECTRONICS HOBBYIST?

PART II

Edited by
Marv Beeferman

ers, 741 op amps, and 7400 TTL projects even today, when in modern electronic products, these parts have disappeared long ago?

Another problem is that as ICs got larger in scale (not size), it became more complex to design a project. Instead of simple projects, you were limited to an entire system. That left many of the novices in the dust, as there were few real engineering types willing to build the big systems.

An additional factor was the emergence of massive, cheap off-shore manufacturing. This meant you could buy ready-built products cheaper than you could buy the parts and build one yourself. A good example is a power supply. Even a complex switching mode supply for a PC costs less than \$30. Why bother with building your own? Lots of products turned out like this, especially computer-related boards and modules. No wonder the kit companies went away.

One other problem is test equipment. At one time, you could test what you built with a volt-ohmmeter and maybe a cheap 5MHz single channel scope. Signal generators, power/SWR meters and counters were pretty inexpensive and you could even build your own. But today, you need a scope with a bandwidth of up to 1 GHz, a logic analyzer, and perhaps even an AWG. With typical prices over \$10K each, most hobbyists can't afford them.

But the large scale ICs had another affect. It allowed manufacturer's to create whole new families of exciting and useful products like cell phones, MP3 players, DVDs, and laptop computers. How do you get a 10-year-old kid excited about receiving an AM radio station on a crystal radio if he already has his own cell phone, MP3 player and TV set? Boooorrring.... (However, IF you can get a 10-year-old to build a crystal set, the "Eureka effect" of making something yourself that actually works, simple as it is, can be quite rewarding and can yield a positive, confidence-building end result.)

Where Are We Today?

There are still some electronic hobbyists active today. Their nature has changed considerably, but they still like to build small projects with older parts. And there are a few kit companies still out there to serve them (Ramsey, Elenco, Kelvin, Jameco and a few others). There

seems to be three distinct concentrations of hobbyists; amateur radio hams, those who like robots and the new breed of hobbyist that builds projects with embedded controllers. (I would also include those involved in the preservation of electronic artifacts - radios, test equipment, phonographs, audio gear, etc. - and the devices they build to bring these items back to life as part of this concentration... Editor).

The hams are a big category. Of a population of some 650,000, perhaps over half are what are generally referred to as "appliance operators." These are the hams that buy all their commercial gear and really don't get into building equipment. The remainder are indeed true hobbyists, as they do build, design, experiment (and restore...Editor) and get involved at a greater depth with the equipment. The ARRL's publications (QST and QEX) are probably the best electronic hobbyists magazines available.

The robot crowd has been around for a few years, spinning off from the computer hobbyists in the 1980s. The Heathkit "Hero" robot created an initial stir that was later advanced by the "Battle Bots" competitions on TV. There are lots of kits and magazines like Servo available that support the hobby.

The embedded controller bunch is a growing category that attracted some of the older hardware crowd, but also a new batch of hobbyists who are more akin to programmers than electronic engineers. Since every electronic product has an embedded controller today, it makes sense for hobbyists to pursue such projects. There are a ton of cheap development boards, kits, and other stuff to make things interesting. The premier magazine serving this group is Circuit Cellar. Nuts & Volts, about the only surviving generic electronic experimenter magazine, also covers embedded controller projects.

The "Systems" Hobbyist

There is also what appears to be another kind of electronic hobbyists emerging. Systems hobbyists buy and experiment with every electronic gadget. They have surround sound audio systems and were probably the first in their neighborhood to get the big screen HDTV, TiVo, satellite TV dish, and all the other related stuff. Or they do shortwave listening or experiment with HD, XM or Sirius satel-

lite radios to their car. These people also do geocaching with their GPS receivers and install 400-W stereo systems in their trucks. Others hook up their MP3 players to their stereo systems. Some install their own security systems. PC gamers are in this category with their hyped-up super computer-level PCs with graphics that will blow you away.

These are the non-ham equivalent to an appliance operator. They work strictly at the system level, but still need a general understanding about what goes on inside these devices. They connect stuff together and make it work. They hang around at Best Buy and Circuit City rather than Radio Shack.

Some Final Thoughts

Electronics has evolved and, as a result, so has the hobbyist. Perhaps the whole electronic hobby thing didn't really go away - it just changed. It is different now because of the way we design, build, and make electronic equipment. It just does not make it practical to work at the component level. We don't fix much of our electronic equipment anyway; we just throw it away and get new and better ones. Aren't we all just looking for our cell phone to fail or get lost so we can get a cool new smart phone?

(But for those few of us where electronics is still as fascinating as it was some 80 years ago, things have not changed that much. Restoring and maintaining our radio and electronic collections has given us the opportunity to still work with the discrete components that have well-served the electronics community as the precursors of today's "designer" components. Perhaps, in some way, we are the last holdouts, the last preservationists of what was once one of the greatest hobbies ever...Editor).

