



The Pittsburgh Oscillator

Newsletter of the Pittsburgh Antique Radio Society

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Whole Number 19

September 1990

FIFTH ANNUAL FALL AUCTION, WLW PHOTOS HIGHLIGHT SEPTEMBER 8 MEET

We return to the Murrysville Reformed Presbyterian Church (formerly the Maranatha Reformed Presbyterian Church; see map and directions on page 12) for our September 8 meet. As usual at this meeting place, we will hold our annual auction of radio equipment, parts and literature. These fund raisers have been very successful in past years, and we hope to continue the trend.

Please bring with you any items you have to contribute to the auction. We request that each PARS member bring at least one item. All proceeds from the auction benefit PARS; nothing will be sold on consignment. This is your chance to get rid of the surplus but usable items that you have accumulated over the past year.

The general meeting and auction, which starts at 1 p.m., will be preceded by a flea market in the parking lot. The flea market starts at 10 a.m. but will be discontinued during the meeting. >

While Bob Rockwell was attending the ARCA convention in Cincinnati this June he took a side trip to the transmitter site of WLW, also known as "The Nation's Station". Broadcasting at 500,000 watts definitely requires some special considerations, as Bob's site visit report explains on page ten.

While at WLW, Bob took photographs that he will display and explain at the PARS meet. He will also have photos of the nearby WWII Voice of America establishment. <>

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Right around the corner
THE OTHER RADIO MUSEUM

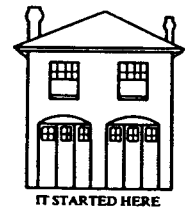
The Society has a long-range goal to establish a radio broadcasting museum in the Pittsburgh area. Some PARS members have already earmarked pieces in their collections to be donated to the museum.

In the meantime, of course, there are still many radio exhibits and much equipment to be seen. We are thinking of the hundreds--probably thousands--of items that exist in the collections of all PARS members taken as a whole. You've seen some of these pieces at various PARS contests and other meetings, but probably what you've seen so far is only the tip of the iceberg (the back porch of the composite signal?).

We know of one PARS member who rents a double garage in which he stores only a portion of his collection of consoles. Another member maintains a collection of radio parts going back into the teens and earlier. He also has a collection of hundreds of tubes. Other collections include peripheral items such as jukeboxes, Victrolas, test equipment, telephones, etc.

So, until that day when you can stroll through a museum and see all the goodies at once, why not call your friendly local PARS member and ask to see the other stuff in his or her collection? Most radio collectors are delighted to give guided tours of their collections, and this is an excellent way to increase your knowledge of both the equipment and the history that goes along with it. <>

**THE
 PITTSBURGH
 OSCILLATOR**



David Kraeuter, Editor

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The Society is incorporated as a non-profit corporation. The Society is dedicated to the preservation and exhibition of historic communications equipment and early electronic entertainment media, with an emphasis on the Pittsburgh area and related material. Members are encouraged to acquire, restore, or replicate historic items and collect publications, recordings, and other materials related to the history of communications and broadcasting.

--Article II
 PARS Constitution

Honorary Members	Raymond M. Bell G. Ray Fitterer
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In the letter box

MEMORIES OF ANNIVERSARIES PAST

Dear PARS,

I've often wondered what ever happened to all the KDKA radio files from those early days. It's fairly certain that they were thrown out.

About 20 years ago, on the 50th Anniversary of KDKA, they had me do a re-creation of "The Messages to the Far North" in which I simulated the type of message we broadcast--but I don't even have a copy of that vignette. So there is nothing but the imperfect recollections of Bill Hinds and Bill Beal.

It was in the summer of 1938 that the Hudson's Bay Company paid my expenses to visit some of the outposts in the far north to which I broadcast each week. I took a friend along and we headed North in July of that year. It meant an all-day trip on the Timiskaming & Northern Ontario Railroad (Time is no Object). We arrived at Moosonee, a trading post on the tip of James Bay, where we were greeted by the Factor and his wife. We stayed at their modest abode before traveling on to other locations. They asked me to sign their guest book. I can still remember my astonishment when I wrote my name under that of the last guest who had visited Moosonee and stayed at the Factor's home--Charles A. Lindbergh.

During that trip I met a lot of people who had been recipients of radio messages and I noticed that in every spot a short-wave radio was installed in a room where many chairs and pillows gave evidence of Saturday night gatherings. It was then I realized how important the broadcasts were to those people--most of them Scotch, English and Canadian. KDKA and W8XK were the >

only connection they had with the outside world.

Occasionally one of the trappers would get a leave. First destination in the States--KDKA. In fact, I can still remember a wiry old codger--he looked old, but he was probably in his 40s--arriving at the station, asking the receptionist for me and when I came out to the lobby and identified myself, he handed me a miniature ivory polar bear which I still have and prize as a memento of those years at KDKA.

Bill Beal

Dear PARS,

I believe it was the human, wifely confidence that I liked most about Mrs. Frank Conrad. At least, that is what I remember.

She had spent the day as guest of KDKA in celebration (I believe) of the station's 40th birthday. Throughout a long series of interviews and lunches and chit chat, she had been extraordinarily gracious. I had accompanied her and was most impressed with her poise and patience. Then, the day's end neared and we were both tired, resting in the ladies' lounge. She confided a nettling fact: "In less than a year, Betty Furness (TV spokesman for Westinghouse at the time) earns more than my husband did in his lifetime with Westinghouse."

Then, the two of us went out for farewells to the KDKA officials. As a thank-you for her day's work, they presented her with a very small FM radio. We exchanged glances.

Wendy King

<>

SOME MILESTONES

By Raymond M. Bell, ex-W3FUU

- 1868 Mahlon Loomis using kites sends spark signal 18 miles between 2 West Virginia mountain tops.
- 1887 Heinrich Hertz (Germany) transmits spark signals (250 MHz - near channel 13) across room.
- 1897 Guglielmo Marconi in England sends spark signals 34 miles.
- 1901 Marconi receives "S" sent across the Atlantic to Newfoundland, using kite, frequency undetermined.
- 1904 J. Ambrose Fleming in England invents diode.
- 1905 Lee de Forest in America invents triode (Audion).
- 1906 Reginald A. Fessenden using c.w. (continuous wave) transmits music on 50 kHz.
- 1908 Hugh Gernsback starts **Modern Electrics** magazine.
- 1912 Radio law assigns amateurs to frequencies above 1500 kHz. Edwin H. Armstrong discovers feedback (regeneration). David Sarnoff picks up Titanic "SOS".
- 1915 U.S. Navy station at Washington, D.C., sending voice on 50 kHz to Paris, heard in Hawaii.
- 1916 Frank Conrad granted experimental (special land) license 8XK Pittsburgh.
- 1917 Armstrong invents the principle of superheterodyne.
- 1920 Westinghouse Commercial Land Station KDKA Pittsburgh, Pa. begins regular broadcast programs (600 kHz).
- 1921 American amateurs, including 8ACF Washington, Pa., heard in Scotland using c.w. on 1500 kHz.
- 1922 London radio 2LO opens on 830 kHz.
- 1923 Broadcasts of Westinghouse 8XK using 3.2 MHz heard world-wide.
- 1925 C. Francis Jenkins, Washington, D.C., sends radio movies.
- 1926 John L. Baird, London, sends radio movies.
- 1927 Bell Laboratories transmit TV on 1575 kHz, using mechanical scanning with 50 lines.
- 1928 Jenkins W3XK, Washington, D.C., begins regular TV programs with mechanical scanning, 48 lines, 1604 kHz. Vladimir K. Zworykin invents kinescope.
- 1933 Armstrong discovers FM (frequency modulation); previous transmissions used AM (amplitude modulation).
- 1936 BBC opens London TV with 405-line electronic scanning, ch. 1.
- 1939 NBC opens New York W2XBS TV with 441 lines, electronic, ch. 1. Armstrong opens FM station W2XMN, Alpine, N.J. on 42.8 MHz.

1940s Printed circuit wiring developed.

1941 Pittsburgh FM stations begin - W47P (WWSW) 44.7 MHz and W75P 45.7 MHz (Westinghouse).

1949 Pittsburgh TV station WDTV (DuMont) opens on ch. 3, 525 lines.

1954 Color TV available on WJAC Johnstown, Pa. - ch. 6.

1970s Cable TV.

1980s Satellite TV.

1986 PARS founded.

1990 Hubble orbiting telescope begins transmitting to earth. <>

WE WELCOME THESE NEW MEMBERS AND RENEWALS

Larry Bassett
210 Biddle Avenue
Pittsburgh, PA 15221
243-4026

Paul Eardley
29 Weber Road
Sewickley, PA 15143
741-3250

Molly and Rudy Hoffart
19380 Newton Avenue
Euclid, Ohio 44119
(216) 531-4697

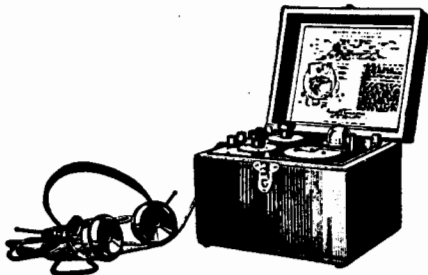
William Hope
Box # 780, Road # 1
Pittsburgh, PA 15001
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345 E. 47th Street
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(212) 705-7608

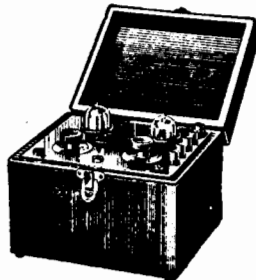
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4857 Havana Drive
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793-8519

Richard C. Wilson
221 Hall Street
Bridgeville, PA 15017
257-2074



**CUT NO. 145
Radiola Senior**



**CUT NO. 166
Radiola Senior Amplifier**



**CUT NO. 329
Radiotron
UV-201A**

Cuts on this page and on page nine are from the RCA Electrotpe Specimen Book in the collection of Howard Tobias.

What and how**WRITING FOR THE OSCILLATOR**

Since the bottom of the barrel recently came into sight, we're issuing a general call for newsletter articles.

We're not looking for highly technical or even highly polished writing like you'd see in, say, the proceedings of the National Academy of Sciences (though if you've prepared a manuscript for the Academy and it deals with radio history we'd certainly like to see it). We're looking for first-hand everyday accounts of experiences and ideas you may have had in the broad field of radio history--working in the profession, collecting or selling radios or tvs, restoration work, troubleshooting, etc. Though the subject must relate to radio history, it need not necessarily relate to local radio history.

If you still can't think of what to write, here are a few suggestions:

1) We would like someone to tell us what it was like to live without radio. We're not talking sensory deprivation here. We don't want anyone abstaining from their hobby for six months and then writing about the experience. We want to know what it was like to live before radio was widespread, what radio-less life was like before roughly 1920. Surely by the mid-20s there must have been many conversations about "What did we ever do before radio?" Radio (electronic communication) has had such a profound and widespread effect on social life in the past 70 years that it is now difficult even to imagine what aspects of social life were enhanced by it and what aspects >

weakened by it. For that matter, what social phenomena were completely eliminated by radio?

2) Increasingly we are getting requests to print more items about radios themselves--particular makes and models, experiences with restoration, etc. An article on a late-40s TRF radio and a short piece on the Aeriola Junior are on the way. But we would like to see much more.

As for the format of your articles, we're not picky. Legible handwriting is completely acceptable. Typewriting is better. If you can supply your article on a 5 and 1/4" floppy disk that's even better. ASCII format is good, and WordPerfect version 4.2 or 5.0 is, well, perfect. Drawings should be submitted in black ink, and black-and-white glossy photographs can be reproduced the best.

As for time frames, painful experience has taught us that the best deadline is ASAP. This makes it easy for you to remember, and easy for the Editor to not worry about. If your material is "time sensitive", remember that we like to send out the newsletter about two weeks in advance of each meeting, and the printing process itself takes about a week. There must also be time for inputting, page make-up, proofing, etc. Articles that are not time sensitive and do not get into any one issue can be held aside for the next.

Finally, a hint. If you don't know how to begin, pretend you've just got a new antique radio and are telling your friend about it. Then, don't tell her. Tell us. <>

THE ARRIVAL OF VIDEO TAPE

By Bob Rockwell

RCA used the commercial name "Kinescope" for their cathode ray picture tubes. They probably hoped that this name would catch on like "Jello", "Fridgidare", and such, but it never did. The name did stick in the process of filming a TV picture off of a CRT screen. That process was always known as a "Kinescope Recording" as opposed to simply film. If a program was made on film, as for example all of the "Lucy" shows, it was just referred to as film.

In 1949 when WDTV went on the air, the completion of the coaxial cable from New York to Chicago was also celebrated. Live TV programs to be delayed in the East or to be shown at anytime west of Chicago, had to be shown as Kinescope Recordings. The bad news was that the quality was horrible. I have in my collection copies of "Your Hit Parade" which were made for the west coast. Andre Baruch read a disclaimer at the end advising that the hit list was actually a week old as the western folks were seven days behind the East. Shows at least as late as September of 1954 were shown as "Kinies".

Therefore, we had three types of television picture. Live of good quality, filmed of good quality and Kinescope Recordings of live shows which were very poor. Obviously a prize was to be had for he who could find a way to record a picture electronically.

In the mid-fifties Bing Crosby Productions perfected the recording of video on tape. This was a reel to reel system. The standard speed for high fidelity broadcast audio tape had been

fifteen inches per second and it recorded well above 20 khz. To record video would require several mhz, and the only way to do this was to increase the fifteen inches per second to some very fast speed. Although this worked quite well, who could handle the huge rolls of tape required ?

Ampex Corporation (AMPEX= Alexander M. Pontiatoff EXcellence) found the solution. In 1958 they introduced the first production video tape machine, the VR-1000. They had already made 2 inch wide audio tape machines for multiple track recording at 15"/sec. Now they added a new twist (pun intended). While the tape ran over the transport at 15"/sec, a rotating video headwheel would spin at 240 revolutions per second across the moving tape. The net result was a very high speed slightly diagonal



CUT NO. 321
Radiotron WD-12



CUT NO. 333
Radiotron UV-200

From the RCA Electrotube Specimen Book
in the collection of Howard Tobias.

track that was written across the 2 inch tape. The wide tape was cupped by vacuum to conform to the diameter of the headwheel. The main feature of the headwheel system was that one head would not be able to be in contact with the tape at all times. Therefore four heads 90 degrees apart on the wheel were used. For recording, all heads were fed the same video signal, not so complicated, but for playback we only wanted to see one head at a time as it passed over the tape. Here we had a very complex and fast switching arrangement. Due to the four head system, this type of recording is known as "quad tape". Audio was recorded by conventional heads.

KDKA-TV bought one of the first VR-1000 machines. Gradually commercials were supplied more and more on tape instead of film. RCA entered the market and introduced their TRT-1 machine, fully compatible with the Ampex. KD traded in the Ampex on two RCA's. The RCA machines each were five standard racks wide and if you wanted to play color (ours did not) seven racks wide. That is about twelve feet long. Compare that to your VHS magic box.

By 1960 Westinghouse Broadcasting Company (not yet Group W), decided to enter into a new field. WBC Productions was formed and two new shows were created to be distributed as syndicated, non-network products. "PM EAST" with Mike Wallace and Joyce Davidson was mastered in New York. "PM WEST" with a San Francisco columnist named Terence O'Flaherty was mastered in San Francisco. WBCP (not KDKA) purchased an RCA TRT-1B and we installed it along with the two KDKA >

machines. We had one man on duty midnight each night to make two recordings at a time from the master on the third machine. Of the five Westinghouse TV stations, we were chosen because some years previously we had become the distribution center for the RKO movie package being used by all of the five stations. A certain film director named Richard C. Dreyfuss was largely responsible for this operation. His successor added the distribution of our tapes.

The projection room at KDKA had limited space in which to expand this operation. We even had two machines out in the hall after commandeering the radio disc jockey's office for more space for these monstrous 2" machines. The above mentioned "PM" shows were replaced by the "Regis Philbin Show," (a flop). Then came the "Steve Allen Show" for several years and we expanded into daytime syndication with the long term success, the "Mike Douglas Show". The operation expanded into 24 hour operation and a greatly expanded staff. Douglas was originally monochrome then we offered a choice, then all color. New color machines purchased for KD were RCA and those for the production company were Ampex.

Next, we moved to a large basement area at KDKA, no longer sharing any facilities between KD air programming and the syndicated recording in 1972. Although completely flooded out in 1973, the operation remained there until 1976. At that time a location was chosen in Robinson Township convenient to the airport for the shipment of tapes. Thousands of video tapes were shipped in and out each >

week. The staff (now named Group W Productions) expanded from about thirty in the basement to 85 at Robinson Township. The basement area was absorbed by the greatly expanded KDKA-TV News Department and the "Evening Magazine" show.

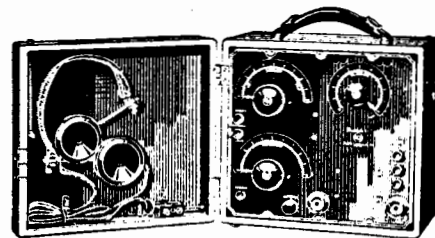
In the move in 1976, all of the equipment was quad except the first three 3/4" U-Matic cassettes. Two of these quad machines have been donated to the future PARS museum. A major decision was made to take on non-Group W business at Robinson Township. A few more quad machines were added, but a new format arrived and took off like wildfire. Ampex and Sony had both sold simple 1" "helical format" machines. Neither were suitable for broadcast. They were not compatible either, although both were called "A Format". Now Sony and Ampex wisely got together on a new compatible "C Format", and both started mass producing machines. ("B" existed in Europe). We added Ampex 1" equipment steadily for several years.

Type C has a tremendous advantage over the old quad in that only one rotating head is required, thus eliminating the massive problem of switching and matching the outputs of 4 heads. You have all seen banding in pictures caused by poor setups; each 16 lines of video required a headswitch. Now using a helical wrap system in which the two reels are not in the same plane, causing the tape to wrap around the head drum at an angle, a very long diagonal path track is recorded on the 1" wide tape. Most TV programs on the air today are Type C recordings. Group W ultimately had 26 1" machines which continue today. Numerous quads have been junked including one we bought in >

1971 for nearly \$150,000. Small stations began asking that programs be supplied on U-Matic 3/4" format. We added dozens of these relatively inexpensive boxes. Today there are about 80 of these. Regular home type VHS and Beta were added for some clients. A new Beta-Cam system and a VHS M-2 format have been created. NBC is swinging its entire operation to M-2. The quality of either of these new formats is incredible, and although they look and handle like your home cassette, they are not cheap. One M-2 Panasonic machine ran \$17,000.

The operation in Robinson was given a fancy name distilled down to TVSC. It was the largest supplier of syndicated programs for a long time. The distribution of programs via satellite was added with a micro-wave link between TVSC and the Group W Earth Station at the site of KDKA radio in Allison Park. This earth station is shared with KDKA-TV via remote controls. (All CBS programming is down-linked there).

Due to intense competition, TVSC (now Group W Video Services), once the leading distributor of non-network programming, has fallen on hard times and the future does not look very bright. <>



CUT NO. 141
Radiola II

PARS VISITS WLW
By Bob Rockwell

Several PARS members attending the June ARCA "Crosley" National Convention in Cincinnati enjoyed several tours and seminars provided by that group. A particular thrill was a visit to the transmitter site of WLW, "The Nation's Station".

WLW, like KDKA, had several moves from its days of playing windup phonograph music and asking for postcard replies. Finally, in 1925 the present location was secured. Power reached 50 KW before 1930. WLW went even further and in 1933 got an experimental permit to operate 500 KW. The station operated this high power in regular operation from 1935 to 1939 when Congress decided 50 KW should suffice. The big rig was kept operational until 1943, and even into the fifties WLW continued to lobby for permission to go super power again. Mexico operates a couple of such stations even today. The surprise to all of us was that this thing is still standing there !

The 500 KW amplifier/modulator fills the rear half of the WLW transmitter building, which is far larger than the average transmitter plant. There were three amplifiers with outputs coupled to a 10 1/2 inch transmission line to the tower. Each of these three amplifiers used four Federal Electric tubes running in push-pull/parallel, a total of twelve RF tubes. The modulation was provided by another eight of these tubes in two cabinets. These tubes cost \$1200 in the thirties. Cooling was provided by a huge fan system in the basement and by a distilled water system up from the bottom of each tube. The distilled water was cooled by city water in a concrete pond>

out front resembling a city water system's aerator pond. WLW's regular 50 KW Western Electric rig provided the drive for the amplifier affectionately referred to as "the 500". After the return down to 50 KW, this Western Electric rig was refurbished and is operational today as a standby for the modern Continental rig on the air. It is interesting to note that the Continental is 86% efficient (KDKA's Gates/Harris rig is even higher). The old 500 was 30% efficient which means about 1,700,000 watts of power was being purchased through the big substation out front!

We attended four Crosley seminars hosted by former WLW employees. The retired farm director discussed the actual operating farm that they ran near the transmitter. All of the stories about people lighting their homes with WLW RF were brought up. Since there were eight of these old timers present, people asked what about the radiation dangers? They all agreed that there were no ill effects even though they admitted that you could feel your ankles get warm and draw arcs all over the place. One fellow described breaking an arc to a wrench by stepping away and his crepe soles were left smoldering in place on the floor.

I took some pictures of this site and the Voice of America plant next door which was also a Crosley creation during WWII. I hope to have them to show and discuss at the September PARS meet. <>

[This article is the first "site visit report" to appear in the Oscillator. We would be pleased to see others from anyone visiting any historical radio site.--Editor]

FIFTEEN QUESTIONS SEEKING ANSWERS

1) We all know why fuses have current ratings, but why do they also have voltage ratings?

2) What is the difference between "wireless" and "radio telephony," as in the sentence "Fessenden, while fully acquainted with Marconi's wireless equipment--having experimented with these devices--was more interested in radio-telephony."*?

3) What is a "straight line" capacitor?

4) What makes "snow" appear on a tv picture tube when no signal is present at the antenna terminals?

5) A 10 ohm, half-watt resistor is the same size and shape as a 10 megohm, half-watt resistor. How is the resistance of a carbon resistor determined during manufacture?

6) Where is the Radio Hall of Fame? Who has been named to it?

7) What is the best way to begin troubleshooting a radio that gets only one local station?

8) What is the best way to begin troubleshooting a radio whose symptoms are intermittent (other than taking it to Laten Fetters)?

9) In the evolution of tube design, what advantage was gained by separating the cathode from the filament? >

10) Here's a weird one. We are listening to our Philco tombstone Model 16-125 (1933) and notice a moderately loud "hash" in the audio, probably coming from the overhead fluorescent light. The instant we turn on our computer to compose this column, the hash disappears. An hour later we turn the computer off and the hash instantly reappears. Computer, light, and radio are all using the same electrical outlet.

11) We hear Milton Berle referred to as "Mr. Television". Who was "Mr. Radio"?

12) How long did it take after a.c. radios became available to the public for battery sets to be thought of as antique radios?

13) Approximately what was the average income for a single, independent radio service person in the 1920s?

14) Approximately what percentage of independent radio service personnel in the 1920s were women?

15) We are considering upgrading our hardware so the newsletter can be printed on a laser printer again. Is there anyone out there who can give us some sound advice on such matters as 286 vs. 386, full-page monitors, mice, graphics programs, maximum RAM needed, cache needed, and, above all, cash needed? <>

*J. T. Bernsley. "Chronological History of Radio," *Radio-Craft*, Vol. 9, No. 9, March, 1938, p. 643.

WANTED: I specialize in purchasing collections and estates involving antique radios. Contact me in confidence.

Jim Clark, (517) 349-2249.

A FEW FINAL WORDS ABOUT THE AUCTION

Please make your best attempt to contribute to this year's auction. In past years we have had large quantities of electronic gear donated to the auction by a local college. That source is no longer available to us, so we are counting on each PARS member to contribute to the success of the sale.

We're not asking you to give till it hurts. Just till your cellar's clean.<>

A FEW FINAL WORDS ABOUT RADIO RESTORATION

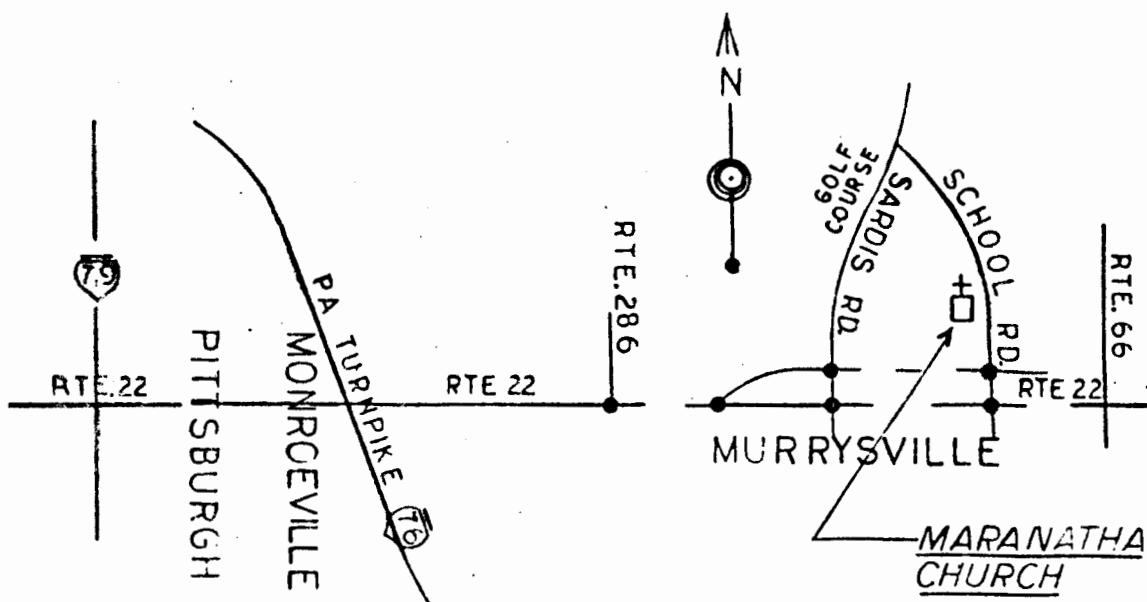
We hear you. You want more programs and material about radio restoration and less about radio history.

So--coming soon to a PARS meeting near you: a talk by Richard Brewster on restoring a 1939 RCA TRK12 television that may soon be on its way for display in Japan. Also, David Kraeuter will be telling us a few things he learned while restoring a 1924 RCA Super VIII console.<>

Directions and Map to Murrysville Reformed Presbyterian (Maranatha) Church
(Map courtesy of John W. Haught)

From Pittsburgh, follow Route 22 (Parkway East) to Murrysville. After passing McDonald's at Sardis Road,

travel 1.8 miles to School Road and turn left. The church will appear on the left 1.5 miles later. <>



For more information call (412) 222-6678 or (412) 241-1085.