



2000 - The last year of the 2<sup>nd</sup> Millennium!

# OSCILLATOR

DELAWARE VALLEY HISTORIC RADIO

*The Official Newsletter of the DVHRC*

*Vol. 8. No. 1. January*

## Happy New Year

Our first meeting of the year 2000 will be held at the Telford Community center at 7:30PM, January 10. This month's program will be another video from *The Secret Life of Machines* series shown on The Discovery Channel in 1990. This episode concentrates on television.

Elsewhere in this issue you'll find articles by Bob Thomas and Dave Abramson. These are excellent examples of the sort of home-grown material that really enhances a club news letter. Reader submissions do not necessarily need to be this elaborate. Just a snap shot of one of your favorite sets, or a short note about a recent radio adventure would be greatly appreciated. If you have e-mail, it makes this stuff really easy. MS-Word 97 (or earlier) is the preferred file format for extensive works, but we can deal with most anything.

Keep in mind that *Super Winter Fest IV* is not far off. Contact Bill Overbeck to reserve your table.

## Y2K Membership Dues

Let's all make an effort to pay our club dues promptly. The club's living something of a hand to mouth existence, so your cooperation is appreciated. Take a moment to check the address label on your *Oscillator*. If it bears the number "99", your membership expires December 31, 1999. Some of you already have credit for "00" and beyond. Dues can be paid at any regular monthly meeting, or you can send your \$15 check to DVHRC, P.O. Box 847, Havertown, PA 19083.

## DECMEBER MEETING

By Dave Snellman

Bill Overbeck brought the annual "holiday" meeting/party to order. We had a short agenda, but a busy night! First was the reminder of the upcoming swapmeet. "SuperWintermeet 2000" will be held at the Grimes Center in Havertown, PA on March 4, 2000. Vendors will be able to set up at 7:30 AM, with buyers admitted at 8:00 AM.



Dave Abramson's latest find. See Page 3.

## THE OSCILLATOR

Newsletter of the  
Delaware Valley Historic Radio Club  
P.O. Box 847  
Havertown, Pa. 19083

The *Oscillator* is published monthly by members of the non-profit DVHRC. Its purpose is to provide a forum to educate, inform, entertain, and communicate with collectors and preservers of vintage radio technology.

We welcome and solicit information relating to radio history or collecting. Submissions should be carefully researched, typed and accompanied with clear photographs or diagrams. Material on-disc (3-1/2" DOS/Win95) is particularly welcome.

Unless copyrighted by the author, material in this publication is available for attributed reproduction for nonprofit purposes. (For convenience, the editor can supply copy on-disc.)

Personal views, opinions and technical advice offered in this newsletter do not necessarily reflect those of the members, officers or Board of Directors of the DVHRC, nor is the organization responsible for any buying or selling transaction incurred.

To join: DVHRC dues are \$15 per year. The membership year runs January-through-December. Please mail to the club PO box above.

Meetings are held the second Tuesday of the month at 7:30 PM

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**COPY DEADLINE:** The 20th of each month.

Well, it was the holiday party, so the second item was FOOD! Lots of good food, plenty of beverages, and some great deserts were enjoyed by all in attendance. Once again the Hilltop Tavern provided us with a nice spread.

Third in line was the election. December is the time for the election of the club's Board of Directors. Nominations were accepted from the floor at the November meeting. Ballots were passed out and the board for the year 2000 will consist of: Bill Overbeck, Pete Grave, Al Klase, Dave Abramson, and Dave Snellman. The newly elected board met briefly to determine club officers for the upcoming year. The officers are: Bill Overbeck, President; Dave Abramson, Vice President; and Dave Snellman, Secretary. Al Klase and Pete Grave will serve as board members. Phil Fabrizio will continue as Treasurer.

Another feature of the evening was our book sale. Plenty of popular titles were available at discounted prices.

We had a gift exchange that took place as the ballots were being counted. Members who brought gifts to exchange took part in this annual part of our holiday meeting. A few "leftover" gifts made it into the evening's auction.

What would a DVHRC meeting be without an auction? We had a little less in this month's auction; however, there were some nice pieces. The buy (or steal) of the night was the Zenith console. Some "experimenter kits" were in the auction and probably made their way under someone's XMAS tree.

Just a reminder - It's time for the 1999 dues. The membership dues are \$15.00. (Remember membership runs from January to December.) Dues can be paid at any regular monthly meeting or send your check to DVHRC, P.O. Box 847, Havertown, PA 19083.

Those wanting a table for the March swapmeet should contact Bill Overbeck ASAP. We expect a sell-out again this year. Tables are \$15.00 per table in advance. You can send your check to the address listed above. Please mark it for "swapmeet table" so we don't confuse it with membership dues.

See you all in January. The eleventh is the day. Telford Community Center is the place. 7:30 PM the time.

## COMING EVENTS

Feb. 8	DVHRC Meeting, Telford, Pa.
Feb. 11	NJARC Meeting, Freehold, NJ
Feb. 18-27	NJARC BCB DX Contest
Mar. 4	Super Winter Meet IV
Mar 10	NJARC Meeting, Freehold, NJ
Mar 14	DVHRC Meeting, Telford, Pa

# Baird TV's

By Dave Abramson

This story (with more chapters to follow) starts with a friendship with another TV collector in Connecticut who offered me 1/2 interest in these two sets. He had come across them through his contacts in 1997. The current owner is Jon Gilles in Hayes, Middlesex, England. He is a television collector over there who had a collection of about 20 British pre-war sets that he was thinning out. Several of his sets are shown in a British book, "Television is King" that was printed a few years ago for a exhibition by Christies Auction House in Britain.

The sets are a Baird T-5 (the six knob set) circa 1936, and a Baird T-23 (the three knob set) circa 1938. The T-5 is the earliest known Baird production model of an all electronic British set. John Logie Baird is best known for his pioneering work in early mechanical television in the 20's, but saw the future in electronic television after a demonstration by Philo Farnsworth of Philco/Philadelphia fame at his lab at the Crystal Palace in London in 1934. Baird's inventive genius was out of tune with his business accumen, and by this time, Baird had already lost financial control of his television research company to the British Gaumont Theatre chain.

We were going to split the sets, and then early in December, I was offered both of the sets for a finders fee. OK, I gave up an Espey kit TV of questionable restoration possibilities and a picture tube for it.

After learning how to dial internationally, I talked to Jon, and with all of my faith in first impressions, I sent the check. The picture tubes will be removed and packed separately at his house and shipped by Union Transport to their office here at Philadelphia International Airport where I will pick them up sometime in January.

Since the check went out, I have been spending too much time on the Internet looking for some history and sending e-mails around asking questions.

To my surprise, one of them made it to Professor Malcolm Baird, son of the inventor and was then forwarded to his son, Iain Baird, both now living in Canada. Both of them have been in contact with me and have offered their help with any questions and history that they may have. The chance to communicate with the son and grandson of this great visionary makes this adventure all the more worthwhile. Who wouldn't like to talk to the Wright brothers kids and own two of the estimated six remaining products.

Besides swooning over the chance to have some of this history in my small house, I have also heard from George Shields from the NJARC who gave up good family time on the phone with me and sent me an article published in their newsletter on his efforts to restore and convert a similar chassis to NTSC standards.

His set is a post-war Bush TV22, also a 405 line set. Although having the usual pre-war, killer HV (or now that I have gone British, the EHT), the remaining conversion of 110/220v., video IF, AM audio and horizontal sweep seem doable. Vertical frequencies are usually within range of the existing circuits.

But as madly as I rush around the world looking for, and getting help, I still wonder if I should make these changes to two remnants of a bygone race to send pictures through the air. There are stories that Baird did war research and work on radar, but none have been confirmed. He died in relative obscurity in 1945. Maybe these sets should be left alone.



# OLDE AUDIO

Bob Thomas, W3NE

**DISCLAIMER:** The following article has been written from memories of events of fifty years ago and might, therefore, contain some unintentional errors. Furthermore, there almost certainly are a few *intentional* exaggerations here and there, arising from the author's passion for the times and his attempt to convey the unbridled enthusiasm everyone felt while being swept along in the early development of "high fidelity" audio.

My first brush with high quality audio was in 1943 during high school days while working part time at Herbach and Rademan's Manufacturing Division on the third floor above the H&R store at 522 Market Street. One of the technicians, Marty Gold, sold me a push-pull 2A3 amplifier he had built. It was in the impeccable style of equipment constructed at H&R in that filament and power supply wiring was squared-off in neatly laced cables, and all components were similarly parallel to chassis sides between terminal strips and tube sockets. I paid Marty \$10 for that amplifier and it became the object of my affection for several years. Later I purchased a public address amplifier with P-P 6L6s from H&R, which they sold at a distress price because it had been built at the store by a former counterman who was summarily discharged after being caught with his hand in the till. I used that amplifier in a small-time business with a friend, playing records at dances.

In 1944 I bought a copy of Hugo Gernsbach's *Radio-Electronic Reference Annual*. An article that immediately attracted my attention described construction of a "Frequency Modulated Pickup" that operated in the old FM band. We had a pre-war Zenith console FM receiver, so I decided to build the pickup. It was constructed in a U-shaped sheet metal channel open at the top with a 6C5 oscillator at one end and a modified crystal pickup at the other. The arm was pivoted just ahead of the oscillator, helping to balance the arm. The builder was instructed to take the pickup apart, saving everything except the crystal element. A short extension rod was soldered to the crystal actuating arm, and a brass ring ½" in diameter was soldered to the far end of the extension. The cartridge was then re-assembled (minus the crystal element) so the actuating arm extension with ring attached protruded out the back of the housing. This assembly was mounted on the channel with the ring in close proximity to a small coil connected to the oscillator tank circuit. The needle transferred record groove undulations to the shorted-turn ring, changing the oscillator coil inductance to modulate the frequency in accordance with needle movements. The oscillator was picked-up by the FM receiver to reproduce recorded material with pretty good fidelity, everything considered. Great fun for a kid!

A confluence of events following WW-II set the stage for rapid development of high fidelity audio reproduction in the late 'forties, specifically:

- The LP record, invented by Peter Goldmark, and subsequent development of mass production methods by CBS and allied companies were on the threshold of maturity;
- "Tape recording" had reached U.S. labs from Germany, and was beginning to appear in consumer and broadcast products, instantaneously raising expectations for audio quality;
- New materials and components, and other strategic developments of the war suddenly became available for civilian applications;
- Manufacturing facilities, engineers and a vast production labor force, only recently dedicated exclusively to wartime production, suddenly became available (and desperately needed) new products to sustain commercial manufacturing;
- FM broadcasting was rapidly expanding and economical high quality receivers were available;
- And, a pent-up thirst for improved audio quality – by technically-inclined individuals, if not the general public – was poised, ready to explode.

It was around 1946, while attending Drexel and penniless, that I became really immersed in the exotic world of High Fidelity Audio – a term we always used, never resorting to the consumer vernacular, "HiFi." THE magazine of the day (actually the only magazine) was *High Fidelity*, which was published at the seat of audio perfection, Boston. The editor was C.G. McProud, and he published a fine monthly magazine and an *Audio Annual*, all files of which I foolishly threw away when my fickle interests drifted to other areas. Integrated receivers, with everything in one box, were unthinkable at that time, – a view that seems to have come full circle – so there were design and construction articles on tuners, pickups, turntables, preamps, power amplifiers, tone controls, and equalizers. There were frequent articles on broadcast equipment and acoustics by professionals in those fields, technical articles from leading manufacturers the likes of Klipsch, Tannoy, Hartley and Jim Lansing on speakers and enclosures (at one time the Englishman Hartley advocated making speaker enclosures of brick and mortar!); McIntosh or Henry Hosmer Scott on amplifiers; and engineers from RCA

and Western Electric on disc recording techniques. McIntosh, who had been a broadcast consultant in a partnership with Andy Inglis, later to become manager of the RCA Broadcast Systems Division. Most articles in *Audio Engineering* were in the context of the magazine's title: they were high level technical manuscripts that included mathematics when required but definitely none of the dumbing-down so prevalent today, even in so-called "esoteric" magazines that thrive on pompous rehashing of well established vacuum tube fundamentals.

The most notable article ever to appear in *High Fidelity* would have to be the one that introduced the Williamson amplifier to the U.S. The domestic version used a 6SN7 phase inverter driving triode-connected 807 push-pull output tubes coupled to the speaker through an imported Partridge output transformer. The secret of this exceptional transformer was high quality core material for low hysteresis loss, and interleaved sectionalized windings to minimize leakage reactance to extend high frequency cutoff and eliminate instability in negative feedback circuits. The basis for the amplifier and transformer requirements were propounded by D.T.N Williamson, who had written a series of articles in *Wireless World* during 1947, and still available in a reprinted booklet, a testimony to the sound (no pun intended) principles established so long ago by Williamson.

For many years reproduction of LP records was complicated by utter lack of an industry standard for playback equalization. Every record manufacturer had their own pet equalization so, to properly reproduce records from all sources, phono preamps had to provide six or more different response curves selected by a switch on the preamp. It was years before the RIAA accumulated enough clout to specify a single standard curve, probably the only altruistic contribution to society this outfit ever made. Furthermore, note my earlier comment that LP development was at the "threshold" of maturity. In fact, by 1950 LPs still suffered horrendous tracing distortion, warping, and surface noise, all studiously ignored, to varying degrees, by record manufacturers' "quality control" departments, even to the end of LPs – a fact conveniently overlooked by the anti-digital cult.

A favorite receiver of the day for high quality AM reception was the TRF (Tuned Radio Frequency), basically a high gain bandpass amplifier on the station carrier frequency, eliminating the oscillator, mixer, and narrowband IF amplifier of a superhet. A TRF typically used using five Miller coils in shield cans about 2½" in diameter, and a 3-gang variable condenser. One of the coils was used in a high-Q 10kc. notch filter to attenuate the audio beat between adjacent stations with AM carriers on 10kc. channel spacing. A TRF sounded pretty good and I would build another one today if there was anything worth listening to on AM, but when FM became prevalent in Philadelphia, after the war, I scrapped mine and bought a Pilotuner for \$19.50. The Pilotuner was housed in a squarish wood box with a large dial, going unnoticed today at swap meets. It did not have AFC so it tended to drift and would occasionally jump from one station to another, but in its day, it was quite prolific and highly prized. Meissner also made a tuner in kit form or factory-built, the Model 8C/8CK, but it never had the following of the cute Pilot even though the Meissner circuit was more refined.

So much for FM reception at home, but suppose you wanted to listen to FM in your car. You were pretty limited there. Tube-type FM receivers for automobiles were made by the German company Becker and sold in Philadelphia at an exorbitant Full List Price only by Cherry's, which was located around 18<sup>th</sup> and Spruce. The mechanical pushbutton tuning mechanism employed linkages made of a special plastic that spontaneously turned to powder after three years. I bought a second receiver after my first three-year melt-down, foolishly thinking they surely would have solved the appalling

plastic problem, but they hadn't. Welcome to 1955! At that time no one had thought of circular polarization for FM transmission as commonly implemented today, so mobile reception suffered from cross-polarization losses of the horizontally-polarized signal and vertical mobile antenna. AM was rapidly becoming like it is today, so the short comings of mobile FM were gladly tolerated.

*To be continued.*

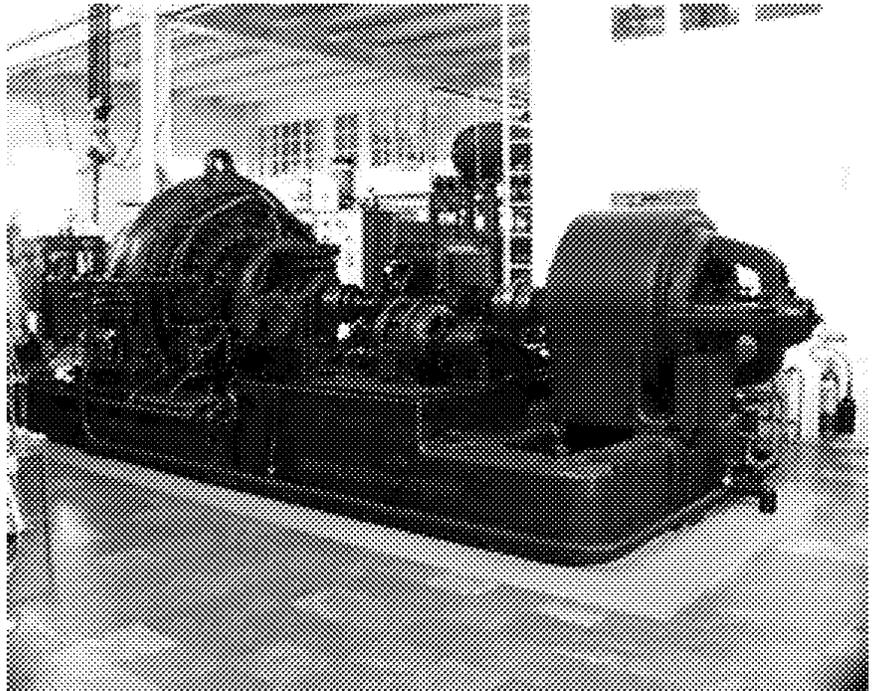
# A Radio Message from the King

One of the pleasant surprises of the holiday season was word that the 200KW Alexanderson alternator at radio station SAQ, Grimeton, Sweden would be on the air New year's day to celebrate the year 2000 in general and the station's 75<sup>th</sup> anniversary in particular. This is probably the oldest legally operational radio transmitter on the planet.

The station had not been on the air since May 1998, at which time it was copied in New Jersey through the late Spring lightning clashes by you intrepid editor. A conversation with Bengt Svensson at last Fall's AWA convention revealed that the power company would not allow SAQ to be operated during the heating season when the ether would presumably be in better shape for Transatlantic work, but reportedly New Year's day was OK as most industries were closed.

Frantic activity ensued at N3FRQ to resurrected the Watkins-Johnson VLF receiver and loop antenna, but hours of listening turn up nothing. However, SAQ was heard in the US by at least three listeners including NJARC member Alan Douglas. Alan keeps a WWII Navy RBA receiver with homebrew loop in his Pocasset, MA garden shed at the end of 100ft of carefully filtered and buried power cable for just such occasions.

The following transcript of the message sent by SAQ was provided by Lyle Koehler, K0LR, who copied the CWmessage in central Minnesota.



200-KW 17.2-KHz Alternator at SAQ.

CQ CQ CQ DE SAQ SAQ SAQ

A RADIO MESSAGE FROM GRIMETON  
RADIO/SAQ  
JANUARY 1ST 2000.

FROM HIS MAJESTY CARL XVI GUSTAF, KING OF SWEDEN.

SEVENTYFIVE YEARS AGO THE FIRST WIRELESS MESSAGES WERE SENT FROM THE RADIO STATION AT GRIMETON IN SWEDEN TO THE UNITED STATES OF AMERICA. THE NEW LINK WAS SUPPLIED WITH THE ULTIMATE IN MODERN RADIO TECHNOLOGY AT THAT TIME, INVENTED BY THE SWEDISH-AMERICAN ERNST F. W. ALEXANDERSON, USA. IN THAT FIRST MESSAGE FROM GRIMETON SEVENTYFIVE YEARS AGO, MY GREAT GRANDFATHER KING GUSTAV V EXPRESSED THE HOPE THAT BETTER COMMUNICATIONS WOULD STRENGTHEN THE RELATIONS BETWEEN PEOPLES AND NATIONS. TODAY THE ONLY STILL EXISTING ALEXANDERSON-TRANSMITTER IS AGAIN SENDING A MESSAGE AROUND THE WORLD. TODAY THE UNIQUE RADIO TRANSMITTER AT GRIMETON MEETS A NEW MILLENNIUM. MY MESSAGE TODAY IS, HOWEVER, THE SAME AS THAT SENT BY KING GUSTAV V SEVENTYFIVE YEARS AGO. WITH MODERN TECHNOLOGY AND MEANS OF COMMUNICATION, THE POSSIBILITIES OF DEEPENED UNDERSTANDING, PEACE, DEMOCRACY AND FREE EXCHANGE OF OPINIONS BETWEEN THE PEOPLES OF THE WORLD WILL INCREASE. FINALLY, I WISH A HAPPY NEW YEAR TO ALL OF YOU AROUND THE WORLD, WHO ARE LISTENING TO THIS TRANSMISSION.  
SIGNED

CARL GUSTAF REX  
AR END OF MSG

# 1925 Ham Transmitter Drawings

The following drawings are from original blueprints in the collection of Mike and Alice Tannenbaum. 8ZZ was Clyde Darr who did cover artwork for QST in the 1920's.

