
George is seen at the A.W.A. Booth looking at an amateur arc transmitter made by W5APG in 1914. W5APG said it was never successful since he had difficulty getting it to oscillate properly under 400 meters! (foto by W2QY)

Another VHF Station will soon be under construction in Northern Norway near the Arctic circle. The station is a NATO project and will be built by the Continental Electronics Co. of Dallas. The terrain of the country fits in nicely for hanging the huge antenna system between two steep mountains such as our Jim Creek station. The station is scheduled for operation sometime in 1968.

Al Fitch (W3AW) writes that he visited the Colonel's "Round Hills" estate in 1925. It was a fabulous place for a ham to visit and through the years was a temporary haven for many of the "greats" in the radio field. Al believes the title "colonel" was an honorary one having never attained such a position in the service.
On a recent trip to native upstate New York, Orrin Dunlap dropped off 95 tubes at Holcomb for the club's museum. Although the majority were relatively common, 16 proved extremely interesting. First, there was a little diode similar to the Welsh tube - this was identified as a "Margo" tube. Then there was a very old looking bellant tube with a large candlebra base (similar to a Fleming valve)...no identification. Digging deeper into the box we found several foreign tubes...a German "MS" transmitting tube circa 1927, a Telefunken DHP-KX274, an early Marconi WE4 triode, etc. In addition, we unwrapped a French tube made in the U.S.A. for the A.E.F. Although similar to German and other French types, the cylindrical plate construction on this one appeared different from the several here at AWA. In the American line we found a Bright­ son triode in its familiar plush box, an early WE239-A with tilt-top, a Myers Audion, a Cunningham 262 (this is an early screen grid tube and we think quite rare), a Doble-Bristol detector tube type B-6, a CeCo type 222 with screen-grid connection as side binding post, an Archatron KX-O301A (how's that for diagnosing a 201-A? It was a brand name used by Ken-Had in 1927), then we found a deForest DL-114! , a RCA-22 (UX-222) with isolantite base and many others...

Of greatest interest, however, were the two Weagant valves. These tubes are priceless. They are both round and approximately 5" long. One has straight sides and looks like a test tube. The other has two different diameters. Neither have sockets...wires coming out at each end. As most of you know, Roy Weagant was an inventor and engineer for Marconi and other companies before and after WGI.

Regarding Orrin Dunlap, our benefact­ or. He is known to most historians. Born in nearby Niagara Falls, Orrin built his first amateur station in 1912 and operated several years under the call 6IQ. In 1917 he continued his wireless activities as a commercial operator for Marconi on the SS Octotora. Enlisting in the U.S. Navy (1918), he served at the Great Lakes Naval Training Station and then to U.S. Naval Radio School at Harvard. This was followed by an assignment at famous Otter Cliffs station NHD.

Graduating from Colgate University, Orrin plunged into a long prolific career as Radio Editor and Author. He was the Radio and Television Editor for the...
We received a nice letter from Phil Gildersleeve, WLDJD, QST cartoonist for the past 35 years. Gil tells us that Don Hoffman, 8UX, became a Silent Key about 10 years ago and that the grand-daddy of them all - Clyde Darr, 8ZZ, left us over 35 years ago!

Harold Dingler, W3KH (ex-8KG, 8YC) also helped fill in the gaps. Hal tells us that 8UX may have been the originator of the QSL idea back in 1920-21. (see June '23, Sept. '24 and Feb. '25 issues of QST). Don (8UX) later became W8AQP and served as Lt. Cdr. in WWII. He was considered an excellent ham and a gentleman of the first calibre.

STORY ON RADIO MUSEUMS will appear in the magazine "Popular Electronics" some-time in the very near future. Written by AWA member Ted Hannah (K3CUI), it gives a general picture of some of the more popular amateur museums and should create more interest in our hobby of historical radio.....

DON'T FORGET TO PAY YOUR DUES if you want your Bulletin with all the latest news items covering historical radio...only $2.75 a year.
NOTES ON GERMAN PIONEERING

By Norm Burton
New South Wales, Australia

Little credit is given to some of the early development work by the Germans in American and British publications. For instance, the Germans had in use by late 1913 at their big station in Kaminia, Togoland, valve (tube) HF amplifiers. This predated any British or U.S. operational use by quite a long time. They had tested radio in airships around 1900 and in the air war over the western front their airplanes were all fitted with tube transmitters by about 1916. Oddly, in spite of the explosive risk with hydrogen gas, they used spark transmitters in their zeppelins. By 1916 their U-boats were fitted with both spark and valve transmitters and could, when off your east coast, work back to Germany at will. The receivers also were of the valve type fitted with oscillators to allow CW sigs to be heterodyned. Technically, thru reading German stuff in the original, I have come to the conclusion that both of our countries were way behind the Germans in WWI radio advancement and the use of the latest equipment.

I do know that the U.S.A., after their entry into the holocaust, had to scrap most of their radio gear as far as the U.S. Army went as it was quite hopeless on the Western front. It is odd how these distorted pictures get about and with constant repetition they gain substance. Armstrong is invariably held to have invented the superhet, yet how many know that a German by the name of Schottky patented one 6 months ahead of Armstrong and even he was almost 12 months behind Levy of France. In the '20s, Levy successfully contested this in your courts.

I once read that the old "Imperator" pride of pre-WWI German trans-Atlantic merchant fleet could, at will, communicate with either shore of the Atlantic from any location. Seems a bit far fetch with a rx just a simple diode detector. It turns out to be quite true! I have a pix of her radio room in 1912 by the way. She has masts about 190' above the water line and three transmitters - all Telefunken musical spark. The small one for local work was the so-called "tragbar" job used by the Army. It was 250 watts. The normal xtr was the type TKL2 which had about 1½ KW. musical spark, whilst she also had a 7½ musical spk job! The latter, working on about 2400 to 2800 metres, could work into Germany when within range of your east coast station at Sayville! Sig in Germany were often down to 32 - but they did run a service! The serial at Nauen was 660 feet high. Two rings of masts surrounded it at a distance of 110 yards and 220 yards. It had 18 masts on the outer ring and 15 on the inner. The outer and inner masts were 100 feet high. Quite a catchment area what? The power at Nauen early in 1912 was 25 KW but before end of year it was raised to 100 KW. In 1915/16 it was upped to 400 KW! The 400 KW could be copied here in Australia on a crystal set receiver!!! - also in New Zealand - in fact, the M.Z.P.O. monitored Nauen all thru World War I from Awarua where they put up a special monitoring station.

(Ed. note: Don't fail to listen to Norm's entertaining account on his visit to a British Cruise ship in the Sidney harbor which employed a British Lord as Chief Wireless Operator...It is part of the Saturday Program at the National Meet.)

NORTHEAST ACTIVITY - Warren (W7JY) reports plenty of activity. Historical exhibits and programs are in great demand at club meets and annual dinners in the area. Within the past few months he presented programs at two QCWA groups - Northwest chapter in Portland, Ore. and a group in Centralia, Washington in addition to another in Yakima, Wash. Speaking of activity - Warren really had his hands full as a result of his "ad" in the last OTH which offered an exceptionally large collection of fine gear for sale.

NEW GEAR AT A.W.A. MUSEUM

Crystal detectors - Earle Young
Holzer-Cabot generators - W6AXU
Meters - W2FBA, W6AXU, W6JIM
 Receivers - W6CUC, ex-9AVK/W2T,
 Tubes - ex-9AVK/W2T, K6KW, Orrin Dunlap
 Books/Magazines - W6VA, K6IKO
 Rare prints - W2ENT
Crystal set - W6ENFZ
Early telegraph equip. - Ralph Batchelder
Misc. equipment - W6DJ, W6RX, ex-9XT

SOUTH JERSEY RADIO ASSN. GOLDEN JUBILEE

This old time radio club will celebrate their 50th Anniversary (1916-66) on Sept. 10 in Pennsauken. Tickets for dinner ($7.50) may be obtained by writing to S.J.R.A., Box 316, Haddonfield, New Jersey.

FIRST MAC CERTIFICATES were awarded in April 1926 to u60A, u6HM, u1AAB, c6DT, p43A, u92T, b4YZ and gi5XN. Can you recognize these early prefixes?
HAL SENT US THIS RARE OLD PHOTO SHOWING THE RECEIVING EQUIPMENT HE USED BACK IN 1921 WHILE LIVING IN RED BANK, NEW JERSEY. THE PARAGON RA-10 TUNER WITH COMPANION DETECTOR AND 2 STAGE AMP. ARE EASY TO MAKE OUT. THE FUN CAME TRYING TO IDENTIFY SOME OF THE OTHER STUFF. THE BIG WHITE PANEL IS OBVIOUSLY A HOMEBREW JOB. OUR GUESS IS IT IS A REGENERATIVE DETECTOR WITH 2 STAGE AUDIO — USED PRIMARILY FOR LONGWAVE WORK USING THE HONEYCOMB COILS SEEN ON THE PANEL. WHAT BAFFLES US, HOWEVER, ARE THE SIX SCREEN "PEEP" HOLES WITH COMPANION Rheostats (? FOR TUBES — OR MAYBE THE PANEL HOUSED 2 REGENERATIVE RECEIVERS? HAROLD VOORHIS STATION IN 1921

END OF BROOKLYN NAVY YARD

The weekend of June 25 saw the closing of this famous Naval establishment which opened in 1801. Navy men associated the "Yard" for various nostalgic reasons: a place for departure or "leave", where many famous ships were built such as the Iowa, Arizona, Missouri, Independence, etc., however, old time wireless men remember it as a place where they were initiated into radio or can recall the Yard's "rock crusher" that used to blast the ether.

The shipyard reached its maximum employment during WWII with 70,000 men. When the closing was announced about 18 months ago, employment had dropped to less than 9500. Most of the people have since been transferred to other Government agencies or retired.

DE FOREST PHOTOGRAPH ON FRONT PAGE OF VOL. 6, NO. 1 BRINGS IN TWO IDENTICAL IDENTIFICATIONS. JOHN STOKES OF AUCKLAND, NEW ZEALAND, SPOTTED IT AS ONE HAVING BEEN TAKEN ON THE "SS PARIS". HE DOUBTS, UNDER THE CIRCUMSTANCES, THE HEADPHONES WERE BALDWIN. THEN RE Cummings writes and positively identifies the picture and tells us to look on page 342, September, 1924 issue of Radio News magazine. Which reminds us that Col. Gledell made a pretty good guess also on its identity.

MAC MELLAN ARTIC EXPEDITIONS — SET OUT ON THEIR FIRST JAUNT TO THE ARTIC REGIONS IN JUNE, 1923 WITH DON MIX, W1TS, AS OPERATOR. CALL: WNP WHICH COULD MEAN — "WIRELESS NORTH POLE" DON MIX, W1TS, IS NOW ON THE TECHNICAL STAFF OF QST.
ANTIQUE WIRELESS ASSOCIATION
A.R.R.L. Affiliate
An organization documenting the history and technology of wireless and the work of its pioneers.

OFFICERS
President: George Batterson, W2GB, ex-8TC
Vice-President: Charles Brelsford, K2WW, ex-2CTA, SWW
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Harold Smith, WA2CID
Larry Triggs, W2YBK
Earle Young, ex-80VI

Club Station - - W2Afl
"THE OLD TIMER'S BULLETIN"
A news bulletin printed for members of the Antique Wireless Association.
Editor: Bruce Kelley, W2ICE/QCP
Publishing Editor: Larry Triggs, W2YBK
Annual Dues: (including the "Old Timer's Bulletin", certificate and other benefits) - $2.75 per year payable to Club Treasurer:
Lincoln Cundall, W2QY
69 Boulevard Parkway
Rochester, N.Y. (14612)

Address all correspondence concerning Bulletin to: Bruce Kelley,
Main Street, Holcomb, N.Y. (14469)

U.S. ARMY RADIO TELEPHONE IN WWI
is the title of an exceptionally well written article in the June 1962 issue of "SIGNAL". Written by Dr. George Thompson, USA Signal Historical Office, it tells about the first phone transmitters used in combat - its development, use, etc. It is an old magazine but worthwhile digging up.
(Al Fitch, W3AW)

KEEP THE BULLETIN GOING
send us current news items on museums, collections, old gear, magazine, book and newspaper articles concerning early radio and its pioneers, activities...

SPARK TRANSFER AT W5AX
Above is a more recent picture of the variable frequency spark set used by Thorn Hayes to make historical spark signals. Using a variable speed alternator, he can generate all the popular frequencies used in the old days. Note the scope and signal generator used to check the signal. Also note the screen shield around the rotary gap and other components!

CORRECTION FROM WEST COAST HISTORIAN
Noted in recent issue the letter from Howard Fyke about old KJA. I know he knows how to spell the place so it must be your fault. (you're right Bob - it was our mistake...Bl.) The name of the place is JUALLY - not Julian. It was named for a French Canadian who discovered the mine in the Gold Rush days and was owned by a mining syndicate in Eastern Canada. I was familiar with it a number of years before the time mentioned by Fyke. There was also a number of other radio stations at mines in Alaska at that time which I visited either to install equipment or rebuild as I did a lot of that work. There was another station at Kensington mines about 20 miles across the Lynn Canal from Jualin. Their call was KDN. Another famous station was KIM at the Latouche mine as well as Chicago (KEX) and Saltchuck (KWQ) and Nixon Fork (KDRY). R.S. Palmer, W7RD
"A frustrating experience -- --"

I finally got the 1929 xmtr in operation as decided it was about time to cl in on the club's CW Net - particularly since they had contested to use the freq of the onil old time 80 m. xtal hr at AWA (3580 kc.)

The xmtr hd bin in operation on several previous occasions. Results on 75 fone hd bin interesting..using a SB carbon mike with hqf heisling modulation among the 2 KW PEP SSB boys was quite a challenge..particularly at nite..I may as well confess..the results were nil...but during the da snn fb qso's the 110 primary keying was very clear and lnx the AWA net. -- most of whom i knew personally. ..in addition to KZPI,K2NP, WA2WV,W30Y,W3UXM,K2RFR es W9GS (all mentioned in spring OTB) there was Art-W4LM, RI-W2ZI, Harry-W2ARX, Stu-W2ZH and Henry-W3XXO. Almost forgot..we're in process of soldering a couple dimes for relay points....73, Kelley

CW operation was a little bit different. The fone stns wld all commented on the familiar "backwave" resulting fn primary keying. Originailly, I directly keyed the 110 primary of the final plate supply but got a nasty shock one time wen I happened to touch the key es the revr at the same time! This prompted the placing an ancient relay of unknown vintage in the circuit. The relay wld fine except it made an awful clackin noise -- in fact, it made as much noise on the upstroke as the dvn. This proved very distracting while trying to monitor the sending since a tone monitor was not available es I client monitor thru the rx bcs of the backwave es blocking effect.

The day arrived wen it was decided to cl in the AWA net...wld out exception, all members wer reg CW men -- snn of whom wer using hi spedd electronic keyers, etc. Although mi CW was a bit rusty as a result of onil casual operation in recent yrs i hd no trouble copying all stns on the regen rx. An occasional strong one wld produce a blocking effect requiring a slight adjustment of the regencontrol (all sigs are copied wld 2 hands -- one on the regen control es the other on the tuning dial!)

Finally -- W2AN de W2QY GA -- throwing the DPDT switch -- clackety clack es away we started at 12 wpm which is top speed with primary keying es hvi filter. Everything was going swell as the ole 'bug' swung back es forth (it was loaded wld several large bolts to slo it dwn) until abruptly there was no more clacking. A glance at the final indicated full plate current reading! The points on the ole relay hd stuck!

quickly turning off the main pwr supply i tried to pull them apart -- no luck -- they wer welded together. Wat happened on the net fer the nxt fu minutes i' lll never know. Ripping off the 'baldies', i found a file es managed to git the contacts apart es wid a little scraping was in bizness agn.

Altogether, 15 QTs called in tt nite. ..es it was a pleasure to listened to sum fb operators..most of whom i knew personally..in addition to KZPI,K2NP, WA2WV,W30Y,W3UXM,K2RFR es W9GS (all mentioned in spring OTB) there was Art-W4LM, RI-W2ZI, Harry-W2ARX, Stu-W2ZH and Henry-W3XXO. Almost forgot..we're in process of soldering a couple dimes for relay points....73, Kelley

LINESMAN POCKET SET -- A neighbor stopped in the other day and left an old portable pocket type key/sounder outfit for the club's telegraph exhibit. Seems it belonged to his father who use to walk the Standard Oil pipeline between Wellsville and Olean at the turn of the century. Whenever he found a leak he would climb a nearby telegraph pole (which followed the pipe) and communicate with headquarters. Its a handy little piece of equipment consisting of a key and sounder about 3" wide and 5" long with cover...extremely compact -- the key over the sounder. I have seen pictures of one but never dreamed we'd have one here at A.W.A. They were also used of course by R.R. and W.U. telegraphers for emergency work, etc.

The same gentlemen left us a copy of a pulp type magazine titled "RAILROAD" containing an extremely well written article with numerous illustrations of old time telegraph equipment. See if you can find one in an old book and magazine store -- it is the April, 1947 issue....

MY BEST AND WORST INTRODUCTIONS

by Edmund Volz, W5BAF

Back in 1925 as I was installing a regenerative receiver I had built and sold to a neighbor, company arrived and I was introduced by the women of the house as: "THIS IS THE YOUNG MAN WHO INVENTED RADIO".

My worst introduction was when a sweet young XYL from the office came to visit us one evening and while introducing me to her husband, happened to notice my ham gear and said: "You know honey, Mr. Volz is a HAMSTER..."
Visitors watch W2ICE demonstrate W2GB's 1000 watt rotary spark gap transmitter, this past summer set a record for attendance at the A.W.A. Barn Museum. Most visitors now come in organized groups. Just under 200 found their way to Holcomb during the Western New York Hamfest weekend. A few weeks later the General Dynamics Radio Club was there — soon to be followed by the Radio Club and E.E. group from the Rochester Institute of Technology. Later, a group from radio clubs from the Syracuse area — and then of course many came during the "Pageant of Steam".

In between, numerous visitors from all over the country dropped in and admired the vast accumulation of equipment and the several demonstrations such as the one pictured above and taken by W2AJO. Speaking of museums, inclose find a brochure issued by the local Chamber of Commerce. Note the nice writeup on the last page.

ANOTHER COLLECTOR MOVING TO FLORIDA — Esmond Volz, W2AF, has bought a house in Florida and will move part of his fine collection to the new QTH. There are many items which cannot move however — so will have to be sold. See "Old Tyme Ads".

Esmond has had a colorful career — of particular interest is the fact that he was once "sparks" on old time river boats plying the Mississippi!

CRYSTAL DETECTORS AND STANDS

For sometime we've been looking for a reliable source of galena and other minerals for detectors in crystal sets. We now have one. Remember the galena writeup on the last page (p. 20) of the last bulletin? — well, we tracked down the author and it develops his company is very much in business. Not only do they supply various types of mounted crystals (galena, etc.) but they have crystal detector stands and cat whiskers for sale! Their prices appear quite reasonable — in fact, when ordering we suggest you buy several — you may never know when they may become scarce. We'll have some on display at the National Meet.

Write: RADI-ORE-LABS
30 Oneida Street
Lynn, Mass.

ATWATER-KENT Mod. 5A on front page of fall QST still arouses interest. Grote Reber writes that the variometer was used to tune the antenna to resonance and the set had 2 untune RF stages using so-called wide band transformers. He obtained a couple of the transformers sometime back and found they peaked around 750 kc. with some gain down to 500 kc. and a loss above 1200 kc.
The Antique Wireless Association

HISTORICAL MEETING

FRANKLIN INSTITUTE, Benjamin Franklin Parkway at 20th, Philadelphia, Pennsylvania
SUNDAY, and SATURDAY, September 24 and 25, 1966

REGISTRATION

Registration - - - $2.50 ($1 wives) (Covers fees, general expenses, badges, etc.)
Registration and Lunch - - - $5.25 ($3.75 wives)
Registration and Saturday Evening Banquet - - - $6 ($4.50 wives)
Registration, Banquet, and either Saturday or Sunday Luncheon - $8.75 ($7.25 wives)
Registration, and ALL three meals - - - only $11 ($10 for wives)

Make out check to: ANTIQUE WIRELESS ASSOCIATION
and mail no later than Sept. 15 to Treasurer:
Lincoln Cundall, 10QY, 69 Boulevard Parkway, Rochester, N.Y. 14612

State number of persons and meals desired. Indicate whether wife is attending.
You will receive receipt in return mail with final information on program and map of museum showing entrances, etc.

- - MOTELS - -

PENN CENTER INN, 20th and Market Streets (LO-9-3000) Single $13-17 Double $17-22
FRANKLIN MOTOR INN, 22nd and Parkway (LO-8-8300) Single $13-17 Double $17-22
GEO. WASHINGTON MOTOR LODGE, Valley Forge Exit, Penna. T'pke $10 Double $14-16
(The first two Motels are within 4 blocks of Institute)

- - MOTELS - -

BENJAMIN FRANKLIN, 9th and Chestnut Sts.
SHERATON, 1725 J.F.K. Blvd.
ADELPHIA, 13th and Chestnut

Rates are about the same or a little less than the Motels

A FEW PLACES OF INTEREST IN PHILADELPHIA

Independence Hall and American Wax Museum - both located on Independence Mall
Civil War Museum and Library - 1505 Pine St.
Commercial Museum - International Exhibits - 3½ and Convention Ave.
Evening Bulletin Newspaper - 30 and Market Sts. - Tours every hour - 9 AM to 4 PM
Academy of Natural Science - located one block from Franklin Institute

OUT-OF-TOWERS: The American Oil Company is providing us with excellent maps of downtown Philadelphia. The map not only shows streets but also locations of all important points of interest. Send a self addressed business size envelope (4 x 9½") with 10¢ postage to: Bill Laverty, 118 S. Wycombe Ave., Lansdowne, Pa.

LADIES PROGRAM

As in the past, entertainment will be provided for the ladies attending the Meet. Tour to places of interest, etc. will be scheduled as soon as the number attending can be determined. Anne Laverty has volunteered to head this part of the program. Be sure and note when registering whether you would like to attend the lady's program.
PROGRAM

SATURDAY

REGISTRATION - 9:00 A.M. TOUR THROUGH MUSEUM

10:00 A.M.- 11:00 A.M. WELCOME ADDRESS by A.W.A. President George Ratterson, W2GB

Lecture

“RESEARCH ON THE EDISON EFFECT WHICH LED TO THE VALVE DETECTOR”
Howard Schmader, Curator, Princeton Tube Collection, Princeton, N.J.

“REPORT ON THE TITANIC DISASTER”
Charles Henry (Chicago) and Capt. Tom Appleby, WJAX (Washington, D.C.)

“RESEARCH ON THE VARIOUS PIONEERS IN THE DETECTOR FIELD”
Prof. Henry Venden, KBIKO, Chico State University (Worthington, Ohio)

12:00 Noon- LUNCHEON

Honored Speaker: P A U L C O D L E Y of Trans-Atlantic Test Fame
Franklin Hall
Partner of Adams-Morgan Co., Tech. Editor of Wireless Age, etc.
Introduction by RALPH Batcher, former Director of Engineering for A.O. Cardwell Corp., past President of Radio Club of America.

1:00 P.M. - 3:00 P.M. "DEMONSTRATION OF EARLY DETECTORS" (coherer, magnetic, electrolytic, etc.)
Lecture
Lesson
"HISTORY OF THE TELEGRAPH FIELD"
Stewart Davis, K2ZL, Curator, National Telegraph Office Museum
Union, New Jersey

"RESERCH ON THE WORK OF VERY EARLY PIONEERS IN THE DETECTOR FIELD"
Prof. Henry Wenden, K2XCD, Ohio State University (Worthington, Ohio)

3:30 P.M.- 5:00 P.M. "RARE HISTORICAL RECEIVERS"
Lecture
Lesson
Edward Raster, W2ZL, O.O.T.C., Historian and Curator W2ZL Wireless Museum
Exhibit: One or two very rare receivers (to be selected)

“A BRITISH LORD AS COMMERCIAL RADIO OPERATOR” as told by A.W.A. member
Norman Burton, Sydney, Australia, to Peter Neumann (Irving, Penn.)

"THE NAA STORY" (Arlington) Rare pictures and facts about this famous station as compiled by the late Cdr. Paul Watson. To be presented by Charles Brelsford, K2WW, Eastman Kodak Research Laboratories

6:00 P.M. - 9:00 P.M. BANQUET

Honored Speaker: DR. LAURENCE LE PAGE W3QCV
President of Franklin Institute, International known Educator.

Guest of Honor: CLARENCE THIES, Co-Founder of A.R.R.L.
Master of Ceremonies: Lloyd Sherman, W3CDY, Franklin Institute and Phil-Mont Radio Club

Entertainment - -

"THE GOLDEN TWENTIES"
Spark transmitters! Early Broadcasts! Movie Stars! Jazz Age!
**SUNDAY**

**HUGO GERNSBACK DAY**

On this day we will honor Hugo Gernsback, pioneer Publisher, Editor and Manufacturer of early wireless equipment. No single individual initiated as many young amateurs into the field of wireless as did Mr. Gernsback with his magazine "Modern Electrics" and his company "The Electro-Importing Co."

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**PROGRAM**

10:00 A.M.—10:50 A.M.—"THE GREBE RECEIVER" Unusual pictures and information concerning this famous manufacturing company by Jack Gray, W8JDV, Curator of Gray's Wireless Museum, Mason, Ohio

Lecture Hall

"THE 1917 SS CONGRESS DISASTER" as told by Cdr. Richard Johnstone (KPH) to Thorn Mayes, W6AX

Panel Discussion

11:00 A.M.—11:50 A.M.—"WHAT MAKES A PIECE OF EQUIPMENT VALUABLE? —— HISTORICAL?"

Moderator: Joe Pavek, W6QEP, Minneapolis, Minn.

(Panel to be selected)

12:00 N.—

**Luncheon**

Franklin Hall

Honored Speaker: DR. BERNARD FINN Curator of Electricity Smithsonian Institution, Washington, D.C.

Introduction by Ed Redington, W4ZM, former Pres. P.V.R.C. and Electronics Industries Association Engineer

— Break —

Lecture Hall

"AN ABDODAL HISTORY OF HIGH FIDELITY BROADCASTING" Pictures and actual demonstrations with loudspeakers.

Elliott Sivowitch, W2JXI/K3RJA, Asst. to Curator, Smithsonian

1:30 P.M.—2:20 P.M.—

**ELECTRO-IMPORTING COMPANY CONTEST**

Class I - Oldest piece of E.I. Company equipment

Class II - Rarest piece of E.I. Company equipment

**OLD EQUIPMENT CONTEST**

Class III - Homemade crystal sets

Class IV - Most unusual piece of equipment - any type

**RULES:** Leave your old gear in Exhibit Hall between 1 and 1:30 P.M. Each piece will be identified with numbered tag. Equipment will be judged on a "point" basis by 3 judges. Each entrant is limited to 2 pieces (entries) per class. 1st, 2nd and 3rd Prize Ribbons will be awarded. Only one Award to be given per entrant per class.

Contest Chairman: El Haiser, W2ZI

**AUCTION and SWAP SESSION**

2:30 P.M.—3:50 P.M.—

**RULES:** All equipment must be over 30 years old. Each item must bear owner's name and minimum selling price. The purchaser will deal directly with seller - the A.W.A. or the Institute are not responsible for any transactions.

HER'S AN OPPORTUNITY TO GET RID OF SOME OF YOUR 'DUPE'S AND AT THE SAME TIME PICK UP SOME GOOD BINS! PARTS-TUBES-BOOKS-MAGAZINES !

**COMMITTEE**

GENERAL CHAIRMAN: Bruce Kelley, W2ICE/QBP

FINANCE: Lincoln Cumball, W2QF and Bill Gould, K2NP

LADIES: Anne Laverty

COMMITTEE: Frank Atlee-K2PI, Al Pitch-W3AW, Ted Dawall-K3D, Earle Young

Rod Melhuish-WYKX, Mel Comer, Harold Smith-W2KND, Bob O'Neil-K2AXE
Prof. Wendon (K8IKL) is scheduling his European trip so he can return on the Queen Mary Thur. for the Meet and Hal Dinger (W3KH) is cutting his stay at the Radio Conference in Munich so he and the XYL can be back in time:

Junice Thompson (WJMP), O.O.T.C. Secretary, and OT Ken plan to make the jaunt from Maine to Philadelphia in order to take in the doings and meet old friends.

The Program Committee have gone all out to present a "well rounded" program covering many subjects of early communication. Each speaker will present a well prepared talk or "paper" in MINIMUM time -- there will be NO LONG WINDED speeches -- something everyone dreads! The talks will be broken up at regular intervals for discussion and rest period.

Frank Wingard (W9EWH) writes the Meet interrupts plans for a trip to Europe. In order not to miss it, he plans to fly to Philadelphia for the Saturday events -- return to Chicago that nite and take the overseas flight to the continent the next day!

Special badges and identification cards will be issued to all who register. Every effort will be made to identify those attending as to amateur and commercial calls, professional experience, collecting interest, etc.

Hugo Gemsback has been sent an invitation. A letter received earlier indicated he was doing very little traveling at this time.

The picture above shows K3RJA/W2JXL testing one of the several historical microphones in the electric lab at the Smithsonian. He will demonstrate this one and several others as part of his demonstration. Elliott has been with the Government Museum for five years and specializes in the history of radio technology and related areas. His interest in this field started when he studied radio history at Syracuse University.

(Toto - Ted Duvall)

Tube and Telegraph collectors --two of the top vacuum tube historians in the country will be at the Meet -- Jerry Tyne (Bell Labs) and Howard Schrader (Princeton). If you have an odd-ball tube -- bring it to the Meet and these fellows will try and identify it. The same holds true for early telegraph keys, sounders, etc. "Stu" Davis, W2ZH (National Telegraph Office Museum) will endeavor to give information on this subject.

Several photographers will be on hand to photograph the proceedings. There is a good chance that the entire event will be written up in a nationally known magazine.

Tape recordings may be made of some of the talks. See Lloyd Sherman, W3CDY. Be sure and bring your extension cord.

Several well known pioneers of early wireless may put in appearance. They would not commit themselves because of health -- but will try to be present if possible.

REMEMBER -- LIMITED FACILITIES -- REGISTER EARLY ! !
THOMSON AGAIN -- we called to your attention in the last QTH the confusion in the name "Thomson". Let us make it more confusing -- there were not only TWO outstanding electrical/radio pioneers by this name -- there were THREE! Both Henry Wenden and Jerry Tyne called to our attention that we had neglected Sir Joseph Thomson, internationally known British physicist and Nobel prize winner! This Thomson (1856-1940) discovered the electron which led to basic electrical theories of the universe! His books covered subjects on magnetism, radioactivity, etc.

ROTARY GAPS - "Tate" (W8FX) had a re-tired pattern maker layout and make up a pattern for an 8 point rotary gap wheel. He is having several castings made which will help defray the costs. We're not sure whether they are available at this writing; however, if interested, suggest you drop him a line if you want to build up a rotary spark gap transmitter.

H.P. Thetressau, W6FX
27209 W. Six Mile Road
Detroit, Michigan 48240

CONGRATULATIONS TO OTHER CLIFF PERSONNEL.

The A.W.A. congratulates the pioneer wireless operators who recently received special citations for their unusual work in managing and operating famous WWI Naval Station DET. The group made an incredible record for message handling. Through the efforts of Charles Ellsworth (W1TU) and others, they have finally obtained official recognition!

A.W.A. CALENDAR

ANNUAL NATIONAL MEETING
Franklin Institute
Sept. 24 & 25

A.R.R.L. HUDSON DIVISION
CONVENTION
Oct. 15,16
Tarrytown, N.Y.
A.W.A. Programs

FALL MEET
Dinner and Entertainment
Holloway House
Saturday Evening, Oct. 22
Write Link Cundall for reservations.

ANNUAL A.W.A. BUSINESS MEETING
Election of Officers
Nov. 12 QTH: K2JA, Pittsford

The IP-76

by El G. Baser, W2XI - Historian

There has been much mis-information going around the collectors regarding the origin of the several types of IP-76 receivers manufactured by the Wireless Speciality Apparatus Co. of Boston, in the early days of wireless. As there are few of these receivers in actual existence today, very few collectors have really ever seen one. With the idea in mind to clear up some of these misconceptions I have volunteered to write this story.

Few of you no doubt realize that there were actually three different models of the IP-76 in use. Confusion arises since there were no modification numbers or letters ever added to the IP-76 designation for the three types.

The W.S.A. Co. was a potent factor in the origin and development of early radio receivers. The first IP-76 type receiver was offered for sale in 1909. It appeared in a small box like cabinet with tap switches mounted on top. This receiver retired the sliding contact tuners from the art. It was most revolutionary in design. It provided a system of high efficiency since it overcame the losses in the older types with their shorted turns and coil leakage. This first model was mainly supplied to the U.S. Navy with Crystal detector mounted on top and was quite a compact instrument. There was also an "open" type model produced in 1908 but few were ever sold and the idea abandoned.

In 1909 an entirely different model of the IP-76 was produced which at that time represented the last word in radio receivers. For collectors who have a historical library -- there is an excellent picture of this model on page 51 of A.P. Morgan's book "Wireless Telegraphy and Telephony" published by Henley Pub. Co. in 1930.

Most Naval wireless men are familiar with this model - - it is the one with the crystal detectors mounted on top with a dust cover. Another unique feature was that the coupling could be varied with a rack and pinion device which added greatly to speedy operation of tuning out unwanted signals. It really had become a precision device.

To kill another rumor that has been circulating - - the "IP" did not designate initials or names of any particular people or designer that may have been involved in its manufacture. It really meant "Interference Preventor" since the
receiver had become the ultimate in selectivity.

The third type in general use was known as the "double decker" which was brought out in 1914. It was originally designed for use in the United Fruit Company's ship and shore installations but was also used extensively during WWI by the U.S. Navy. A demand for a receiver which would permit a single operator to listen in on two wavelengths at the same time was full filled by the "double decker" model. This receiver permitted the operator, using a "split headphone watch", to listen in simultaneously on both the "distress watch" (500 kc.) 600 meters and longwave shore stations with company business. It increased the speed of traffic handling and considerably reduced the time required for station calling. Eventually all ships of the "Great White Fleet" were equipped with these receivers as well as the shore stations of the Tropical Radio Telegraph Co. They became standard throughout the UFCO wireless service. An excellent photograph of the "double decker" can be found on page 395 of the Sept. 1922 issue of Radio Broadcast magazine for AWA members lucky enough to have these issues in their historical library. The picture shows the operating room of the SS Pastorese (my old ship) and Flagship of the United Fruit Company's "Great White Fleet" in its heyday.

Incidently, UFCO was the first to issue typewriters to their operators back in 1915. This was really "class" in those days and to ship out with their fleet was the ambition of most early wireless men. The radio rooms were spacious and comfortable in contrast to the average ship's "cubby hole" type wireless cabin. A job with "The Fruit Company" in those days was quite a step in any wireless man's career.

One more thought before closing. There is another type Wireless Speciality receiver which looks somewhat like the IP-76 model. In fact, some collectors have been fooled by this and think it is an original one. This is known as the Model Nr. 215 and used a couple of "Perikon" detectors mounted on a slanting section of the front panel. Unlike the "double decker", it employed a single loose coupled tuner -- but had the appearance of the IP-76. There is one of these on display at the Ford Museum at Dearborn, Michigan. This model seems to have confused quite a few collectors who have visited the Museum's outstanding radio exhibit. Unbeknown to most AWA members --

**IP-76 RECEIVER AT NAA**

The picture on opposite page was taken in 1915 in the Receiving Room of the U.S. Naval Station NAA, Arlington, Virginia. The 1912 Model IP-76 receiver is at the left, then an electrolytic detector and in center a National Signaling Co. receiver. At the far right one can see an arc generator used to heterodyne incoming signals. This arc oscillator, by the way, is inductively coupled to the receiver (2nd and 3rd harmonic to prevent overloading) to allow CW reception. The control panel is seen with the meters. The headphones are "Pickard Adjustable Telephone Receivers" made by WSA. (photo credit: Smithsonian)

there is also a Model IP-77 receiver made around 1917 for the Tropical Radio Telegraph Co. (UFCO) which was used aboard their ships for sometime after WWI. I have one of these receivers in mint condition -- the cabinet being entirely made of hard rubber with silver switch contacts which work to perfection. It is really a lovely piece of old gear and came to me from the Veteran Wireless Operators Assn. who wish to take credit as donor. This gear was all stored in their pier warehouse down near the Battery in New York City for many years and finally found a good home in the W2ZI Historical Wireless Museum. In addition to the tuner there was a beautiful marble base "Perikon" detector which is the invention of Greenleaf Pickard, Chief Engineer of the fame Wireless Speciality Apparatus Co., makers of the "Tiffany" in wireless gear.

**MORE OLD TIME TRANSMITTERS ON THE AIR**

Peter Borsi (W4HII) writes that he will have a 1922 "5 watter" on 50 sometime in the near future. Pete also has an early 1927 crystal control xstr which he may fire up. The old Hartley may do the trick on 40. It has two sockets for high power parallel tube operation and a Bradleymohn for "delicate" grid adjustment! "Tate" W6FX, out in Detroit, tells us he plans to call in the AWA CW Net with an old xstr that almost qualifies as an antique. It is one he built many years ago and uses a pair of T-55's in the final. Other than compactness and slightly less drain on the 110 volt mains -- what advantage has a modern xstr over an old one.. they usually sound the same on CW...and sometime about the same on phone!
The Collectors

JACK HERMAN (W6/FW) sent us a picture of early detectors in his collection manufactured by Wireless Specialty Apparatus Co. They include the IP-49 Silicon, IP-175 Galena, IP-202 Galena, and IP-203 Silicon/Galena/Zincite... Nice going Jack - you've got a couple real rare ones there too!

JOHN BROCKMAN (San Jose, Calif.) is a relatively new collector out on the West Coast. New items for Jack includes an AK Mod. 10 breadboard, a Browning-Drake, Fada 160, NR-7 - - all of which are classics for the BC collector. In addition he found several loop antennas including a de Forest.

KEN CONRAD (W1IIE) Retirement has given Ken plenty of extra time to visit antique shops, auctions, etc. - - all of which have paid off. New gear includes several old crystal sets, old keys, wavemeters and a nice variety of BC sets.

TED HANNAH (KJ/CUI) picked up a real off brand receiver and would like to hear from someone who knows anything about the manufacturer. It is a MARTI Model 1910 made in West Orange, N.J. and uses Kellogg type 401's circa 1927-28.

Ted Hannah, 11106 Bybee St.
Silver Springs, Maryland (20902)

FRED PENARD (Norwood, Mass.) also found a very unusual BC set made in 1923 or 24. It is a "Tri-City Electric Co. product. It has a novel tickler coil arrangement - - the coil moves sideways on a rack and pinion. The vernier is a lever tied into the rack system. The set uses UV-199's. Fred, by the way, has had good luck in re-activating old tubes such as 199, 120, 201A's, etc.

FLOYD LYNCH reports he has had good luck in picking up some rare electric light bulbs - - several in San Francisco and four unusual ones in Panama. Floyd may have a new location for his "Hallmark" museum in the near future - - only a few blocks from his present location.

KEN BAMMUSSEN (W6/FM) is having a ball this summer in a 10x50' mobile home out in Wisconsin. He found all kinds of "goodies" right under the nose of Frank Nichols and Gene Kerns - - in fact, he will be shipping over 500 pounds of antique back to the West coast including such items as a de Forest receiver, tubes, marble base keys, spark coils, etc. plus all kinds of early radio publications dating back to 1904!

VERN THOMPSON (W5MW) hit the jackpot recently when he picked up 150 miniature light bulbs for his tube and bulb collection. Some are over 50 years old and of unusual design. Tube-wise Vern added a real nice double wing de Forest antenna.

NET SCHEDULERS

A.W.A. CV Net:
3580 KC. 8 P.M. EST or DST
1st Wednesday each month
West Coast CT CV Net:
3520 kc. 8 A.M. Sat. and Sun.
4:30 P.M. Wednesday
(Fac. time - Stand or Dilate)

A.W.A. PHONE NET
3596 KC. SSB 8 P.M. EST or DST
1st Wednesday each month

Note the new frequency and time for once net. This net is normally discontinued during the summer months. It will go back into effect in October. If you wish a sked with WCFR using an old time transmitter - write WE2EJ for time....

"S.G.B." - - we just knew we would receive comment on this abbreviation as noted in last QST.... Instead of:
"Set-Complete-Radio"- why not use - "Signal-Corp-Radio" ? ?

VISIT TO NPL - Bill Gould, K2NP reports he visited the old Naval Station NPL at San Diego, California, the early part of the summer. Through the efforts of AWA member Lt. Cdr. Jimmy Jones, Bill was allowed to see things normally not available to the casual visitor.

The 3 huge towers erected in 1916 and very similar to old NAA are still standing and look as durable as ever. He saw the room which housed the one time famous high power arc transmitter but could find no evidence of old equipment. There was, however, an old tube IF transmitter used for standby. Most of the equipment, of course, is now either HF or VHF.

NATIONAL ELECTRONICS CONFERECE will be held in Chicago Oct. 3-5. Tens of thousands of young engineers ( and oldsters) will attend this great event and while there they will have an opportunity to see an interesting historical exhibit provided by AWA member Gene Kerns of Milwaukee. We're not sure yet just what Gene is going to bring down but you can be sure he will have some interesting equipment..
OLD TIME ADS

Old Tyme Ads are free to A.W.A. members. Material must be over 25 years old and we have the right to restrict length of copy. Send "ad" to W2CEZ.

WANTED - Old time wall type telephone. With crank magneto ringer preferred. Give description and condition with price first letter. Ted Duval, Forest Drive, RD #1, Gambrills, Md., 21054

FOR SALE - Nigon Model R125 receiver made by Ernst Mignon in Klein, N.Y. Make offer - no reasonable one refused. El Raser, W2EI. 19 Blackwood Dr., Trenton, N.J. 08690

FOR SALE - replacement cones for Cone type speakers. Have large stock of 38" x 38" paper cone sheets printed in Roman Black decor. Excellent for early Western Electric speakers up to 36" in size. Send for details. Frank Pagano, 1835 West 7th St., Brooklyn, N.Y. 11223

WANTED - a Vernier dial known as the "Universerial Dial" to fit on a 1/4" shaft. Dial made by the Walbert Mfg. Co. in the 1920's. El Cummings, 65 Colonial Ave., Cranston, R.I. 02910


FOR SALE - Antique receivers, speakers, and miscellaneous parts all prior to 1925. Send SASE for list. Emond Volz, 3812 Hoffmeister St., St. Louis, Mo.

WANTED - first 12 issues of CQ magazine. Lloyd Petry, 2150 Aztec St., Paul, Minn. 55118

SWAP or PAY CASH - need various issues of magazine "Popular Electricity" published between 1908 and 1918. Also need Feb. 1914, Jan., Feb. and March 1915 of "Modern Electronics." Ev Rasmussen, 164 Lowell, Redwood City, Calif.

SWAP or will purchase - want W.E. broadcast type microphone in conventional round case. Gene Kems 879 E. Lake Forest Dr., Milwaukee 17, Wis.

WANTED - still looking for Wireless Speciality Co. Eaton Circuit Driver Type Triode D. Will pay cash or swap. Selwyn Blake, 186 Summer St., Anson, Mass.


FOR SALE - Rare item - Mignon Model 1835 shaft. Dial - Lloyd Univernier Dial " to fit on a 1/4" type telephone. Ted Riker, W2ZI. 2150 Aztec St., Redwood City, Calif. 94063


WANTED - will pay any reasonable price for a Wireless Speciality One Kilowatt rotary gap type spark transmitter. If you have one and do not want to sell - I would like picture of same.

Philip Van, 3851 Northwood Drive N.E. Cedar Rapids, Iowa 52402

SILENT KEY

DR. ALBERT HULL (born 1880, died Jan. 22, 1966 in Schenectady). Dr. Hull was not well known in amateur radio circles; however, he was a familiar figure in the professional electronic and tube field. The holder of 94 patents and author of numerous papers, he is best known for the development of the screen grid tube, the thyatron, early magnetron, dynatron, etc. He was Asst. Director of GE Research Labs. (Jim Kenney)

H.B. HALL, W5FY, July 20, 1966 in Maywood, Ill. "Diet" was a familiar figure at all A.W.A. Meets and had deep interest in satellite signals.

ANOTHER OLD TIME CARTOON by Phil Gildersleeve, W1CJD

The "gang" got quite a kick out of Gil's cartoon in the last OTB......so we dug up another one which tells its own story. See writeup elsewhere on OT cartoonist.
CHRONOLOGICAL HISTORY OF SOME EARLY ELECTRONIC MAGAZINES

by Erv Rasmussen and Jerry Tyne

"ELECTRICIAN AND MECHANIC"
Started in November 1890 as "Bubiers Popular Electrician" which name lasted only for one number. In December 1890 the name was changed to "Electrician and Mechanic".

In 1907 (September) it absorbed "Amateur Work" which had been established in November of 1901 and run through to April 1907.

By August it had absorbed "Building Craft" which had been established in September 1908. No records have been found of its existence. "American Inventor and "Scientific Digest" must have been absorbed between January and December 1913. "Scientific Digest" ran from Dec. 1911 to April 1912 ("American Inventor" from 1896 to 1907). Both of these magazines are thought to have been moribund when absorbed.

"POPULAR ELECTRICITY"
Started in May 1908. In September of 1912 the name was changed to "Popular Electricity" magazine. In September of 1913 it combined with "Worlds Advance" to form "Popular Electricity and the World Advance". In July of 1914 the magazine combined with "Modern Electric and Mechanics" to form "Popular Electricity and Modern Mechanics".

"COLLINS WIRELESS BULLETIN"
Started in September 1908. Volume I consists of Sept., Oct., Nov. and Dec. of that year. Volume II started in Jan. of 1909. In January of 1911 it was absorbed by "Electrician and Mechanic".

"MODERN ELECTRICITY"
First published in April 1908. In January of 1914 it combined with "Electrician & Mechanic" to form "Modern Electrics & Mechanics". In July of 1914 it combined with "Popular Electricity and Modern Mechanics". In January of 1915 the name was changed to "Modern Mechanics and Popular Electricity" for that month only. February and March numbers were titled "Modern Mechanics". In April 1915 to September 1915 it was titled "Worlds Advance". In October, 1915, it combined with "Popular Science Monthly" to become "Popular Science Monthly and Worlds Advance". January 1916 found the title reverting back to "Popular Science Monthly".

NEXT ISSUE will feature the story of the Atwater-Kent Company by former employee Frank Atlee, K2PI.

OF JARS...AND DECIJARS ?

by Art Goodnow, W1DM

John Clayborough Hawkhead, of Marconi's Wireless Telegraph Co., London, was the author of the first book of its kind, "Handbook of Technical Instruction for Wireless Telegraphists" published by the Marconi Press Agency, Ltd. in 1913. On page 194 of this book, Hawkhead notes that the capacity of a standard Leyden jar is 1000 centimeters (in e.s.u.: equivalent, it will be recalled, to 1112 picofarads). He goes on to say:

"If the capacity be reckoned in jars, and the inductance in microhenries, the formula for the calculation of wavelength in feet is

\[ \lambda = \frac{206 \times \text{jars} \times \text{microhenries}}{m^2} \]

This expression could well be identified as Hawkhead's Equation, deserving of a place in the notebook of every wireless engineer.

Hawkhead's book gives a wealth of detail on electrical and mechanical features of the Marconi Multiple Tuner. For example:

"...the maximum capacity of each of the three main tuning condensers is 10 jars. A scale on the top of each condenser is marked accordingly, and is subdivided into divisions of one-tenth of a jar."

Now that valve receivers are commonplace, with the maximum tuning capacities scarcely ever exceeding one jar, should not a committee be appointed to consider recommendation of the establishment of an ancillary unit of capacity, of more convenient size, such as the decijar ? ?

CRISIS TO CRISIS - - - -

and that just about sums up the story of the F.C.C. today as told in an excellent article in June issue of "FOR-TUNE"magazine. Briefly, the problems of the Federal Communication Commission have reached staggering proportions since it was established some 30 odd years ago. The commission is wrestling with 500,000 License applications every 12 months(!), it is trying to make a decision on CATV, what to do about satellite communication, it is faced with quarrels between giants such as N1 and AT & T, what to do about computer transmissions, pay TV, laser communication, etc.... About the only form of communication the F.C.C. is not concerned with is extra-sensory-perception !
or so you would be lead to believe -- actually it is a mock setup at the New England Wireless Museum. Note the kerosene lamps and the port hole behind the horn speaker. The quench gap transmitter can be seen in background.

(foto by Rl Cummings)

WWV RELOCATED -- Signals from this famous station are now broadcasted from Ft. Collins, Colo. instead of Greenbelt, Md. The station is operated by the National Bureau of Standards and operates continuously except for a silent period of 4 minutes of each hour. WWV is the Bureau's oldest standard radio station having started in 1923 with only a single 1 KW transmitter. It probably has more listeners than any other station in the world today.

At first it operated with a limited frequency range. Today it provides 6 standard frequencies. In 1937 other services were added such as the 440 cycle middle "C" musical pitch and the second pulses, etc. In 1950, 600 Hz. current modulation was added to enable power companies to regulate their 60 Hz current. At this time they also added time announcements in voice each 5 minutes.

Hazelton's Neutrodyne circuit as described on next page marked a milestone in receiver design in the 1920's. This writeup was issued by F.A.D. Andrea who manufactured the famous FADA "160" -- one of the first neutrodyne. Hazelton died May 26, 1964 at 77 years.
HAZELTINE'S NEUTRODYNE CIRCUIT

Possibly the most important development in radio engineering in recent years is the introduction of the "Neutrodyne" receiving and amplifying circuit. For the first time really efficient radio frequency amplification is possible.

Technically the "Neutrodyne" circuit neutralizes the inherent coupling capacities of both the vacuum tubes and their associated circuits. This eliminates distorting regeneration, local re-radiation and other radio receiver circuit disadvantages.

The "Neutrodyne" circuit is the result of several years' research work by Professor L.A. Hazeltine, Professor of Electrical Engineering at Stevens Institute of Technology, Hoboken, N.J.

Professor Hazeltine is one of the world's noted consulting radio engineers. His work in radio has been of great value to the art, and a fitting addition to his achievements is the development of the "Neutrodyne" circuit. The American Institute of Electrical Engineers have honored Professor Hazeltine by making him a Fellow member. Professor Hazeltine is also a member of the American Society of Mechanical Engineers and a Fellow member of the Institute of Radio Engineers.

Eminent authorities are of the opinion that the Hazeltine "Neutrodyne" circuit will revolutionize radio broadcast reception.