MILLEN DFP-201 RECEIVER
(See page 8 for details)
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A. W. A. JOURNAL
"The Old Timers Bulletin"

Editor: Bruce Kelley

Asst. Editor: Dick Ransley

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WHO TO WRITE TO: (Write legibly. Enclose SASE for prompt reply)
Charles Brelsford (President) 255 Danbury Circle So., Rochester, N.Y. 14618
All official business, Conference and meeting activities (Tel. 716-244-9519)
Lauren Peckham (Vice-President) Ormiston Rd., Breesport, N.Y. 14816
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Lincoln Cundall (Treasurer) 69 Boulevard Parkway, Rochester, N.Y. 14612
All dues, address changes, membership applications (Tel. 716-863-0656)
Bruce Kelley, Main Street, Holcomb, N.Y. 14459 (Tel. 716-667-7489)
All material for AWA Bulletin, Museum activity.
Cleveland Daykin, 132 Oxford St., Geneva, N.Y. 14456 (Tel. 315-269-6418)
Museum activity and maintenance.
Dexter Deley, 8 Briar Circle, Rochester, N.Y. 14618
Bulletin mailing and back issues.
Bruce Rellon, Old Bath Rd., Penn Yan, N.Y. 14557
Electrical equipment and light bulb development, Museum Planning Chairman.
Robert Morris, Sunset Lake Rd., RFD 4, Sparta, N.J. 07871
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All business relative to amateur radio activities. Net Lists and Contests.

Change In Address?

Mail information to the Treasurer who handles current mailing list.
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L. A. CUNDALL, W2LC
69 BOULEVARD PKWY
ROCHESTER, N.Y. 14612

AWA NETS (EST/EST

PHONE (SSB)--3866 kc. Tuesday 8 PM
Mon.-- Wed. -- Fri. at 9:30 AM
Sunday -- 7242 kc, 12 Noon
Tuesday-- 14270 kc. at 5:30 PM
CW -- 3584 kc. daily at 4 PM
First Wed. each month at 8 PM
4. ASSOCIATION News
5. BRITISH SIEMENS by John Stokes
6. A.W.A. AWARD Listing
6. History of JAMES MILLEN Co. by Alan Douglas
10. W. E. HORN SPEAKERS by Floyd Paul, W6THU
13. Classic Receiver (David Grimes)
14. Results of the 1981 LOT CONTEST by Ken Gardner, W2BGN
17. The 1981 CONFERENCE Program
21. With The COLLECTORS
22. B.V.W.S. EDITOR at Conference
24. The ATLANTIC CABLE Station
29. The RADIO LA IX Receiver
30. The UV-204-A TUBE DESIGN by Bill Orr, W6SAI
31. The "ZRI" Zeppelin Series - W3QA
32. CLOSE-UP (and Back Issues)
34. BOOK and MAGAZINE Reviews
36. A.W.A. MUSEUM Activities

What's Coming Next!
In the "Old Time's Bulletin"
History of Magavox Company
QeForest DV/UL Tubes
Collecting Early Batteries
A Mechanical Amplifier
History of Billey Crystal Co.
The SE-1420 (1P-501) Receiver
Armstrong's Super-Regen set
Collecting Wire/Tape recorders
How to build a 1910 receiver
Pioneer: John Stone Store
The Reinartz Receiver
Brief History of Sylvania Tubes
History of Cardwell Corp.
Codes on Stamps
Modifying the Radiola III & IIIA
The Hammond Radio Museum
plus much, much more.......
ASSOCIATION NEWS

CONFERENCES

THE BIG EVENT OF THE YEAR!
Fall weather can be real nice in the Finger Lake region and it can also be blustery. As a precaution, the Committee is opening the main room at the Sheraton all day Thursday as a large indoor flea market. See flyers for details. Other good news: Motel rates have increased only $2 at the Sheraton. A $25 room is now $27. Other motels at lesser rates. Lastly, if you have misplaced your Registration Card or need additional information, write Dex Deeley, 8 Briar Circle, Rochester, N.Y. 14618.

CONGRATULATIONS!
--again to Ron Lawrence, Brian Harrison, Bob Lozier and Tom Daniels for their excellent AWA historical exhibit at the ARRL Roanoke Division Convention at Charlotte, N.C. (March). The fellows feel a fair percentage of the nearly 10,000 attendees saw their old gear.

The same congratulations and thanks to Lauren Peckham and crew who manned a similar AWA exhibit at the ARRL Atlantic Division at Rochester in May. This same convention brought a large turn-out of visitors to the AWA Museum.

The largest convention was, of course, at Dayton, where approximately 20,000 milling amateurs gathered. Bruce Kel- ley, W2ICE joined John Nagle, K4KJ to present one of the first programs devoted entirely to old time radio and equipment.

In Memoriam
Frank Matejka, K5RS, ex-5RS, 2BB, W0DD. Chief Engineer for the St. Lawrence construction and other international engineering projects. As a result of Frank's lengthy analysis of amateur call letters, the F.C.C. re-issued 2-letter call which had been dormant for many years. K5RS was a Charter Member of AWA.

Vance Phillips, W6GH, ex-6GH. Radio historian and pioneer radio collector since the 1930's. A specialist in early amateur and commercial equipment, W6GH had a collection considered the finest on the West Coast. Vance was recipient of the 1977 Houck Award.

BOOKS — DOCUMENTARIES

There was a note in this column (Dec. 1980) about a book H.L. Chadbourne was writing. A letter from Chad gives more information. The book will cover the history of communication receivers built in the U.S. from the earliest times (1898) to present. A monumental undertaking! (It will exclude short-range transceivers such as used by police, boat, taxi service, etc.). He tells us he has been working on the project for several years. If you have information on a lesser known communication receiver or manufacturer (not broadcast), drop him a line: H.L. Chadbourne, 530 Midway St., La Jolla, Calif. 92037.

OUR COVER

----------on the last OTB of an early aircraft wireless operator brought several interesting letters. Pat Stewart, W7GVC sent a copy of July, 1911 Popular Electricity magazine with an almost identical cover. The article indicated "wireless" had a future and implied it was doubtful aircraft would ever carry transmitters of "over one-half horsepower" because of the weight!

Houston Roberts of Nashville, Tenn., an antique aviation buff, appeared to be well informed. He felt the pictured aircraft was a Curtis, c. 1910. Houston also said there was a possibility the wireless operator was monitoring his sending and not receiving signals from the ground. It was several years later before there was reliable ground-to-aircraft communication.

Review: FESSENDEN and MARCONI by Julianne Labrecque

Members who have access to the Apr./May issue of Canadian Geographic magazine will find an excellent article on these two pioneers. Of particular interest were two rare pictures: one of an operator at Brant Rock using a double-cylinder winding device for tuning and another of the National Signalling Co. testing what could be NAA's famous rotary spark gap transmitter.
The British company, Siemens Brothers & Co., Ltd., an offshoot of German Siemens, was formed in 1911 to compete with the Marconi Company for the installation of 'wireless' on British ships.

In order to make their apparatus acceptable to British ship owners, it was necessary to establish a factory in England so that it could be claimed British made. Between 1911 and 1914 the company had been successful in having their equipment installed on 150 ships.

A ship installation using 100 foot masts had a guaranteed range of 90 miles by day and 125 miles by night. With 125 foot masts the range was increased to 250 miles and 375 miles, respectively.

In practice, it was found that distances of 1500 miles could often be worked.

The illustration depicts the wireless cabin of the British passenger ship S.S. "CHINGWEN". It is an example of the apparatus manufactured and installed by British Siemens in 1914.

### A.W.A. AWARD LISTING

<table>
<thead>
<tr>
<th>Year</th>
<th>OT Xmtr Contest</th>
<th>Houck Awards</th>
<th>Conference Award</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Documentation</td>
<td>Preservation</td>
</tr>
<tr>
<td>1971</td>
<td>W2LV</td>
<td>Thorn Mayes</td>
<td></td>
</tr>
<tr>
<td>1972</td>
<td>W2LV</td>
<td>Bruce Kelley</td>
<td>Ed Raser</td>
</tr>
<tr>
<td>1973</td>
<td>W2LV</td>
<td>Gerald Tyne</td>
<td>Robert Merriam</td>
</tr>
<tr>
<td>1974</td>
<td>W2LV/ W0TRF</td>
<td>Lou Moreau</td>
<td>Warren Green</td>
</tr>
<tr>
<td>1975</td>
<td>WIDM</td>
<td>Wm. Breniman</td>
<td>Stuart Davis</td>
</tr>
<tr>
<td>1976</td>
<td>WIDM</td>
<td>Howard Schrader</td>
<td>Wayne Nelson</td>
</tr>
<tr>
<td>1977</td>
<td>WIDM</td>
<td>Ralph Williams</td>
<td>Vance Phillips</td>
</tr>
<tr>
<td>1978</td>
<td>K4TS</td>
<td>Don de Neuf</td>
<td>Lauren Peckham</td>
</tr>
<tr>
<td>1979</td>
<td>WIDM</td>
<td>Ivan Coggleshall</td>
<td>Joe Pavek</td>
</tr>
<tr>
<td>1980</td>
<td>W2LV</td>
<td>Lloyd Espenschied</td>
<td>Ralph Muchow</td>
</tr>
<tr>
<td>1981</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1980</td>
<td>Tyne Tube Award</td>
<td>Elle Craftsman Award</td>
<td>William Shaw, W2HYN</td>
</tr>
</tbody>
</table>

| 1980 | Bro. Patrick Dowd | Alan Douglas |                  |                  |
THE STORY OF THE JAMES MILLEN MANUFACTURING COMPANY, INC

by Alan Douglas

The story of Jim Millen, his work with National and later his own company, has been covered before (CQ, July 1967, pp. 2631) but it would take a dozen such articles to do justice to the subject.

In 13 years he transformed the old National Toy Company into the country’s foremost ham or commercial radio manufacturer, but when National’s backers tried to freeze Jim out of the profits (by paying themselves high salaries to reduce profits to be split) he knew it was time to form his own company. To guard against similar problems in the future, he became a banker himself, and indeed is still active in that profession.

Increase the range and usefulness of your set
30 TIMES by installing one of our genuine Audion Detector Panels, complete with instructions for using in connection with your present crystal set, $6.00 p. p. (less tube and batteries). Unwired model, $5
JAMES MILLEN
14 De Koven Street
Forest Hills, L. I.

This ad from the March 4, 1922 New York Globe, and one in Radio News classifieds in March 1922, were Jim Millen’s first ventures into radio merchandising.

It was a good time to be in electronics; the industry was small enough so that many engineers and executives knew each other personally. As an illustration of how the industry was run, among those who played the game like sportsmen, Jim tells of a request from RCA for his company to build their service oscilloscopes.

He needed a $100,000 loan to set up production lines, which was out of the question through formal channels. But RCA arranged to sell CRTs to Millen who would install them in the scopes and sell them back to RCA at the same price. Millen’s invoice to RCA was paid within ten days, but RCA allowed him six months to pay their invoice. Result: a $100,000 interest free loan!

In 1939 Jim visited Tom Mason of Stamford, Connecticut, who was molding bottle caps in his garage, of newly-developed polystyrene plastic. With minor changes in the molds, the caps became acorn tube sockets.

Similar arrangements could be made for an RCA license, which ‘formally’ cost $100,000, far too much for a small company to pay. But Millen could license RCA to use some of his lesser patents for $90,000, and pay them their $100,000, in effect getting the license for $10,000.

In May 1939, QST carried a notice of the new James Millen Company, and in October their first ad and catalog appeared. Succeeding catalogs featured a rapidly-expanding line of mechanical components, all soundly engineered — some have survived unchanged for forty years — but this was just the tip of the iceberg.

What really paid the company bills was the subcontracting work for firms such as RCA and GE. They found it far cheaper to have Millen make equipment than to set up their own production lines. It might be service scopes for RCA, two-way police radios for GE, wartime gear for MIT’s Radiation Lab, or marine radar for Raytheon.

Sometimes the products were fully engineered and ready for production; more often Millen would receive an electrical prototype and would do all the mechanical design themselves. As new components were designed and tooling up, they would appear in the catalog. Subcontract work accounted for perhaps three-quarters
of Millen's total output, and kept the amateur activities afloat.

Millen's approach to ham equipment was to take electrical designs originated by others, and to adapt them mechanically for commercial production. Their first venture was a tunable heterodyne filter, used in the headphone line outboard of a receiver, adapted from a September 1939 *QST* article and made under license (given gratis) by its author Dr. Ray Woodward. In January 1941 *QST* published a description of Henry Rice's clever VFO called a "Variarm", and shortly Millen had a commercial model going.

![Image of a receiver and oscillator](image)

The Millen Variarm ECO (Electron-Coupled Oscillator) was ingeniously designed and worked well, but owners often sent them back to the factory to have the oscillator tube changed, a tricky procedure.

Jim Millen had intended, from the beginning, to make an amateur receiver, but not until the war's end was he in a position to do so. He had an elaborate design ready, a receiver incorporating every feature a ham could want: direct frequency readout, ten ham- and general-coverge bands, motor-assisted tuning, motor-driven bandswitching, etc etc.

It appeared in the early 1947 catalog, as a "custom-built" model, but it must have been apparent, some time before, that it was not a profitable venture: no ham could have afforded it. Only one prototype was ever finished.

![Image of the Millen 90711 ECO](image)

The Millen 90711 ECO (December 1948), successor to the Variarm but still using a similar vernier control.

A "cheaper" model was under design at the same time, using a more traditional approach, with sliding coil catacomb (like the Millen-designed pre-war National models) and bands-bandspread tuning condensers. This model DFP-201 is pictured in some detail here because it is absolutely typical of Millen's design.

![Image of the 90610 2, 6 and 10 M transmitter and the 829 B amplifier subassembly](image)

The 90610 2, 6 and 10 M transmitter dates from October 1947; the 829 B amplifier subassembly remained in the Millen catalog at least through 1963.
DFP (Designed For Performance) 201. Dial pointers are not shown (they were apparently never installed in this prototype). Bandspread or general-coverage ranges are selected by interlocked push-buttons on either side of the bandswitch knob, that engage the mechanical detents on the bandset shaft.

philosophy, that a sound mechanical design was the foundation on which the electrical design would be built.

Millen unveiled the DFP201 (and the 501) at a Chicago trade show in May 1947, and put it in his catalog, but it was soon obvious that even this “cheaper” model could never be sold; their no-compromise design philosophy made it far too expensive. The few prototypes that were completed were said to have cost $2,100 apiece to build. Both models were immediately withdrawn, and revised catalogs printed.

Through the 1950s and 60s new ham equipment appeared in Millen catalogs, side by side with mechanical components; some of it is pictured here.

After 38 years it was time to pull the plug. Their antiquated factory building was in the path of urban renewal, and massive renovations would have been needed to meet new OSHA safety regulations. Jim suffered a heart attack and had to reduce his activities, so in May 1977 the factory was closed. Jim retired to his farm and his banking interests. He feels lucky to have been in the electronics business when there was room for individual effort, and certainly the rest of us are equally lucky to have benefitted from his contributions.

**OUR COVER** The fabulous DFP-201

Top view, with drum dial removed, showing the two trains of anti-backlash gears that drive the bandset and bandspread capacitors. Coupled to the left train are five precision detents that lock the shaft at the proper points for calibrated bandspread, selected automatically by the bandswitch. The gearing to accomplish this, and to couple the bandswitch knob to the drum dial, is unbelievably complex.
DFP 201 interior, with tuning capacitor cover removed. The entire capacitor and drive train assembly floats as a unit on rubber mounts. The five-sided drum dial rotates automatically with the bandswitch and is internally illuminated.

DFP 501. Dial readout, a combination of slide-rule and rotary, is similar to that of the Collins 75A series, which it preceded. Only a very slow tuning rate is provided; for rapid shifting a push-button motor drive takes over. Bandswitching is also motor-driven by push-buttons. Complete with cabinet, this pipsqueak weighs in at 107 lbs! (The 201 weighs 79 lbs) This is a partially-completed prototype.

The 90651 Grid-Dipper (June 1949) was designed by Wilfred Scherer, W2AEF, who popularized its use among hams in a number of CQ articles.

My thanks to (naturally) Jim Millen, his production superintendent Gene Williams, and 30-year employee Mel Dunbrack, and to Tom Rutherford who salvaged from the factory much equipment that otherwise would have been scrapped.
W. E. loud speaker development began about 1907 to meet the request of customers who wished to use a loud speaking device instead of a telephone receiver. A few loud speakers were used on a trial basis in 1908 and a horn speaker was used in the Paris transatlantic communications test of 1915. Later, submarine chasers used balanced armature horn speakers which were developed in 1918.

W. E. horns were designed in the 1920's primarily for p. a. systems in public facilities such as auditoriums, broadcast studios as well as for early sound movies, and W. E. made at least one model for the U. S. Navy.

The home entertainment field (radio horn speakers) was a small portion of their business. However, the radio public made use of the 521W and 10D models as did radio amateurs. The table identifies those W. E. horn speakers known to have been made in the 1920's. The listing also contains a driver unit and an W. E. amplifier containing a built-in horn speaker. Some comments and notes about the items listed in the table:

The 518W and 10D horns are identical except for their nameplates and an internally mounted transformer which the 10D has and the 518W does not. (See Component Parts column in the listing.) The 518W was designed for use with the W. E. 7A amplifier which contains a step down transformer for the proper impedance match to the 518W. The 10D contains a plate coupling transformer so that it can be used in the plate circuit of output tubes.

In 1916 the U. S. Navy assigned a numbering system to identify equipment purchased from various companies. W. E. was given the identification CW as a designation, “C” for commercial company and “W” for Western Electric, hence the designation CW-929, for example.
The driver, No. 549W, used to drive the KS 6368 speaker could be used with W. E. horns 7A (43"), 6A (39") or 11A (72").

W. E. described the 14A as an amplifier, loud speaking telephone and horn designed in an artistic, unobtrusive cabinet. W. E. rated the 14A as "more than equivalent" than the 518W used in conjunction with the W. E. 7A amplifier.

The 555W horn driver was rated at 5 watts. The 555W was later replaced by 555 about 1928.

The Shawphone was advertised in very early 20's catalogs and was among the first W. E. horns to be made available to the public.

The designation CW-929 is a loud speaking telephone which includes a conduit into which the 193W receiver fits. The horn 1A is attached to the 193W by a large threaded nut. The paint on the horn is a black Japan finish. Six mounting screws attach the 193W to the conduit. The 193W receiver has a bakelized linen corrugated diaphragm and a balanced armature driver. Two terminals mounted on the sheet metal cover are described by W. E. as Navy type.

A picture of a carbon diaphragm horn microphone is included in this article. It is a unique microphone assembly, and some collectors have mistaken this microphone for a horn speaker. The metal horn No. 4A is a black finish. The carbon diaphragm transmitter No. 360 screws into the horn and was designed for a test desk distant-talking microphone unit. A lamp socket and lamp bulb mounted in the horn is intended for signal purposes.

Figures 1 and 2 show from left to right a KS 6368, 555 driver, 193W, 521CW and a 10-D. Figure 3 shows a W. E. horn microphone 4A and 360 assembly.

The following information comes from Dr. John K. Hilliard, Consulting Acoustical Engineer, in Santa Ana, California: "Western Electric began advertising and selling horn speakers to the public about 1920 and through 1925 sold their horns directly to dealers, wholesalers and merchandising outlets. In 1925 W. E. formed Graybar to act as an exclusive sales agency for W. E. products sold to industry and the public."
W. E. used "KS" as a purchased item designation. The horn KS 6368 was defined by W. E. as "Primarily intended for use in monitoring sound in film and disc reproducing sound in the loud speaking announcing system for passage busses and in loud speaking telephone systems for communication in central offices". KS 6368 was referred to as both 30" and 36" equivalent horn length in W. E. literature.

A part of the original KS 6368 W. E. specification reads "The horn structure shall consist of two layers of a woolly material drawn tightly over a form having a shape and dimensions shown on ...... Each layer shall be thoroughly impregnated with a suitable binding compound which when dried and baked will stiffen the structure so that it will retain the shape of the mold when the mold is removed and shall be rigid enough to withstand service conditions. The assembled horn structure shall be given a coat of primer inside and out and two coats of black Duco or and equivalent of nitrocellulose lacquer sprayed on the inside and outside."

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### WESTERN ELECTRIC HORN SPEAKER TABLE

<table>
<thead>
<tr>
<th>Horn No.</th>
<th>Component Parts</th>
<th>Driver resist. (k ohms)</th>
<th>Height (in.)</th>
<th>Bell dia. (in.)</th>
<th>Bell Mat'l.</th>
<th>Type driver</th>
</tr>
</thead>
<tbody>
<tr>
<td>10D</td>
<td>Horn #8A Cord 767 Xfmr 112A</td>
<td>1.0</td>
<td>30</td>
<td>14</td>
<td>Molded comp.</td>
<td>Armature</td>
</tr>
<tr>
<td>518W</td>
<td>Horn 8A</td>
<td>.3</td>
<td>30</td>
<td>14</td>
<td>Molded comp.</td>
<td>Armature</td>
</tr>
<tr>
<td>521CW</td>
<td></td>
<td>1.1</td>
<td>23</td>
<td>10</td>
<td>Molded comp.</td>
<td>Earphone</td>
</tr>
<tr>
<td>521W</td>
<td>Horn 9A Cord 762</td>
<td>1.1</td>
<td>19</td>
<td>10</td>
<td>Brass</td>
<td>Earphone</td>
</tr>
<tr>
<td>543W</td>
<td></td>
<td>1.1</td>
<td>23</td>
<td>10</td>
<td>Molded comp.</td>
<td>Earphone</td>
</tr>
<tr>
<td>14A(1)</td>
<td>Driver 527</td>
<td>1.0</td>
<td>12</td>
<td>11 x 13</td>
<td>Wood</td>
<td>Armature</td>
</tr>
<tr>
<td>CW929</td>
<td>Driver 193W Horn 1A</td>
<td>.01</td>
<td>16</td>
<td>6</td>
<td>Brass</td>
<td>Armature</td>
</tr>
<tr>
<td>KS6368</td>
<td>Driver 549W &amp; folded horn</td>
<td>1.3</td>
<td>30</td>
<td>12 x 17</td>
<td>Molded fibre</td>
<td>Armature</td>
</tr>
<tr>
<td>555W(2)</td>
<td>For use with straight horns 6A &amp; 11A or horns 12 - 16</td>
<td>.01</td>
<td>22, 38 or ?</td>
<td></td>
<td>Brass</td>
<td>Voice coil</td>
</tr>
<tr>
<td>Shawphone</td>
<td>182A, driver</td>
<td>.004</td>
<td>11.5</td>
<td>3.5</td>
<td>Brass</td>
<td>Armature</td>
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<tr>
<td>KS6373</td>
<td>Driver plus folded horn</td>
<td>.01</td>
<td>60</td>
<td></td>
<td>Molded fibre</td>
<td>Voice coil</td>
</tr>
</tbody>
</table>

(1) The 14A amplifier has no horn number, just a driver unit.
(2) The 555W is the driver number.
This rare picture was taken in either 1929 or 1930. It shows David Grimes (right) explaining the design of a new Pilot receiver to Bob Hertzberg, K4JBI. Grimes worked briefly for the Pilot Radio Corporation in Brooklyn. The name Grimes was well known in the '20s, but his firm, like others, did not survive the 1929 depression. Pilot receivers are highly prized by collectors.

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Do you know...? --who these people are and what they are looking at? See last page...
January 17, 4 P.M. The 3584 Net, with several OT xmtrs gathered to make a final check (one xmt hadnt been used in a year). The sun set at 4:40, glowing a beautiful red and promising a clear cold QRNless night. Good propagation seemed in the offing because the 3585 RTTY (Cuban?) was rattling away at S8. He burns gallons of oil just idling the hours (don't they all?) but he is a good beacon.

Came the zero hour, 2300 Zulu, to you non-Dxers and the beautiful Qrm started. Bells rang, birds chirped, locusts buzzed and crickets clicked. Oh what a beau-night!! In the middle of the winter? Sure...and the glow of the filament and plates warmed the Old Timer's heart...

But wait! Where are W2AN, W4DB, W2BGN, W7KE and other familiar calls? A quick check of 20 and 40 gave the answer. There they were with many others like W6CG, VE4ZX, K4DE knocking 'em off easily.

Some Qrm on 20 but we moved another 10 Kh next time to avoid RTTY. Boy, it was going to be a great show. The FB condx held up for both sessions and the letters say that all had a good time. Complaints were at an all time minimum!

We missed some of the old timers like W0JE. He was in Mexico without reciprocal privileges... K2WW was in Florida without gear... W1BPI had the flu..but where were W5BOK, W5TOS, W1CRP, K1BH, VE3HD?...etc.

Now for the scores...and excerpts from letters:

K4DE's was the first log received. He made all his contacts on 7040 Kh with a 47 xtal and 10 pa. FB! Remember last year he had zero contacts because no one tuned to 7050. Shows you what transceiver type of operation does to you...

Another example--K9HF is a new-comer with a fine OT 1036 xtal controlled 6L6 on 7050 Kh. He couldn't raise anyone and had to resort to a modern outfit to make contacts. Everyone was crowded into the low end...come on gang...tune around!

W6NNV, another newcomer, is so enthused that he asked for 1982 logs already! W1MB used the new X5 multiplier with his 1931 TNT, type 10 at 12 watts wid a 1936 SW-3. He uses the house drain pipe for an antenna. It wouldn't load until he shoveled the snow away! J3AAC never shoveled snow but suffers brown-outs as different sections of the island are cut off from power at different intervals to conserve energy. The five big 200 kw diesels gulp oil too fast. Power was off the night of Jan. 22nd and Fran didn't hear any AWA stations on the 23rd. He violently pounded the table when discovered he had marked the calendar a day late!

Both W1PEG and W2LC blew their final plate xformers--both from 1931. Linc wonders if the warranty has run out... K2LP blew his 40 meter xtal. You fellows gotta slow down or make shorter dashes... hi...

Windy and stormy... At 035, W9VLK's Marconi type antenna blew down. Undaunted, he scrambled into the darkness and made repairs and back on at 0630 Zulu. Bob, W2EJ/7, now
in AZ sez "it seems awful strange to
call my NC-300 and NCX "modern
equipment"... W6CG and WIBVL
brought back memories of their 50th
Anniversary Qso in 1976 realizing that
soon would come the 55th..

W2BGN used three WE-205D tubes
wired in series on a 12 volt storage
battery to obtain T9 while pushing a
WE 21D.... in contrast, W3INV used
one WE 205D in a TNT to feed the anten-
na.

VE4ZX sez that when the East coast
stations really start to come in, the
East Coasters go to bed! That's why
we wish more West Coasters would
participate... so you would have more
stations to work (and so would we...)

WA3MAS persisted a while with a
multiplier of X5 but gave up in favor
of his old HRO. Qrm get you? ....
W7LOG lives among friendly ranch-
ers whose electric fences made his
HRO and Super-Pro jump up and down
on the bench and caused Dale to gnash
his teeth...

The flu ruined the party for W1BPL
who now has a HK-20 and is raring to
go next year... W3INV sports an OA
Qsl card on the wall. He wonders
if the OA realized what he heard:
a TNT with birdie chirps... W2FW/
WLZ, Jack, wants to hear more 120
cycle notes instead

of "those so darn pure modern CW sigs."
Where was W7JE's good old 210 Mopa
this year? We missed it. W1AB was
surprised at the number of 39 TX's....
he remarks, "that must have been a
good year!"... at least vintage-wise.

W2HYN gulied four cups of coffee
chasing W6CG around the 20 Kh seg-
ment of 80 mtrs without a Qso but
they made it on other bands. Bad condx
or coffee?

Best contest DX was J3AAC qso W6CG.
Several OT xmr did work across the
pond but unfortunately not to AWA mem-
bers... N9TT sez everybody using
transceiver type operation... don't wait
or tune around after an AWA CQ....

K4TS wasn't slowed down by a one
hour power-failure on Sunday after-
noon. Charley, you must have over
worked the big gen-
erators. From the
AWA tube auction,
an 814 made it all the
way to the air. W8AQ
bid it in for WIBVL
who re-built his xmr
to accommodate it... W2BPL was the sup-
plier... When the going got tough, Bill,
W3HWT, fast re-learned his skull sele-
victory to overcome the broad curve
of a regenerative receiver...

The ELLIE Award will have another
applicant when Bob, VE4ZX brings his
home-brew 1936 set to Canandaigua
this fall... Now hear this; all you guys
who had fun and gave full measure in
return, and we quote WA9VLK, "Please
be advised that this 28-year old appreci-
ates his wireless heritage, has the
utmost respect for those hams who came
out of the era (OT) and is thankful that
there is an organization like AWA to
help me live those years more vividly.
"My ham shack has the appearance of
racks, large exposed coils and condens-
ers and lots of big heavy things which
you don't see anymore. Most of my stuff
drifts and draws lots of current and the
transformer hum sometimes covers up the furnace noise."

"In view of all these hardships, I continually ask myself only one question, 'Wouldn't a Kenwood with digital readout and full break-in keying, sterile, in the corner of a vinyl-covered desk be a bore?' Very truly yours,
(sig.) Vern A. Weiss, WA9VLK

NOW, doesn't that make you feel good? See you next year and 73.... W2BGN.

(ps. if you have a yen to hear some of the OT xtmrs, come in on the daily 4 Pm 3584 Kh on the first Wed. of the month at 8 Pm...they are there! KN)

<table>
<thead>
<tr>
<th>TOP TEN STATIONS</th>
<th>No.</th>
<th>Station</th>
<th>Score</th>
<th>No.</th>
<th>Station</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 K4TS</td>
<td>976</td>
<td>6 W1PEG</td>
<td>704</td>
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<tr>
<td>2 W2LV</td>
<td>960</td>
<td>7 W2LC</td>
<td>646</td>
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<td>3 W2HYN</td>
<td>888</td>
<td>8 W2AN</td>
<td>588</td>
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<tr>
<td>4 WIDM</td>
<td>808</td>
<td>9 W2BGN</td>
<td>560</td>
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<tr>
<td>5 K2LP</td>
<td>714</td>
<td>10 W3DB</td>
<td>488</td>
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</tr>
</tbody>
</table>

(Scores for all stations in next OTB)

OLD TIME transmitters-------- -31
OLD TIME receivers---------- -39
MODERN transmitters--------- -46
MODERN receivers------------ -35
QRP 20 watts or less: W1MB, W2FW, K2RY, VE3BDV, W3INV, WA3MAS, W3VVS, K4DE, W4HII, W8BFD
QRP: 5 to 6 watts - W3INV
QRO: 300 watts - W1PEG, W2HYN

OT TNT: W1MB, W2FW, W3INV
OT HARTLEY: K2RY, W3DB, WA9VLK
OT with MO or VE: W1BVL, WIDM, W1PEG, W2BGN, K2LP, W2LV, W2HYN, W3QAA, VE3AFW, K4TS, W9GFS
REGENERATIVE repeaters (3 tubes or less): W1MB, W2AN, WA3MAS, W4HII and W5KL

CONTACTS: 80m. 40m. 20m. 1318 895 572

WELCOME ABOARD newcomers, we are pleased to have you with us: VE1OC, AD 1E, WA2TLD, KE2O, W2VDI, W3BY, N3BFY, W3DB, W3PA, VE3MJH, W4YKA, W6NNV, W6RTU, W8BFD, W9GFS and WA9VLK. Sixteen in all!

The OT cartoons in this report were drawn by former AWA member Phil Gildersleeve, WICJD for QST magazine....

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Perspectives

Rochester Museum & Science Center

Museum’s Mechanical Wizard

Linc Cundall has a perfect record. Since he began volunteer work at the Museum 13 years ago, Linc has repaired every broken camera, projector and apple peeler set before him.

Neither mysterious 19th-century contraptions nor recent developments in audio-visual technology bother Linc. If he hasn’t seen a particular type of mechanism before, he sets his mind to “ferreting out” the problem and soon puts the item back in working order.

Linc “graduated” from Kodak in 1965. His retirement is far from quiet. In addition to his Tuesdays at the Museum, Linc is the treasurer of the Antique Wireless Club and works with the Red Cross on disaster radio operations. He is also an amateur bookbinder and has exhibited his color slide photography all over the country.

The Museum’s repair needs were brought to Linc’s attention by another retired Kodaker and RMSC volunteer, the late Al Hias. Linc began putting the technology collection in working condition under the direction of curator of technology, Richard Kilday, and then assistant curator of technology, Lynne Poirier. Radios, typewriters and 19th-century kitchen gadgets all came under Linc’s scrutiny. Included in his list of repair conquests is a multi-phone, an early type of juke box with a musical repertoire played on Edison cylinder records. The multi-phone, made in 1906, is one of only 50 originals.

A Smithsonian Institution survey has found only six left, one at the Smithsonian, the RMSC’s, and four in private collections. Thanks to Linc’s mechanical know-how, the RMSC’s multi-phone needs only a few cosmetic finishing touches before it will be ready for display.

With degrees in electrical engineering from Worcester (Mass.) Polytechnic Institute and 20 patents under his belt for everything from paper choppers to a sewing machine part named after him, Linc’s technical expertise is an asset to the RMSC. The future will find him looking forward to his third century and taking on more of the Museum’s mechanical challenges.

(Copy From RMSC Newsletter)
SHERATON INN
CANANDAIGUA, N.Y.

OCTOBER
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WELCOME!
Radio and Electronic Engineers....
Commercial and amateur operators...
Radio historians and collectors....

This is our 20th Annual Historical Conference having started as a one day event in the early 60's. It is an opportunity to relax and enjoy an inexpensive vacation away from the big cities in Western New York's Finger Lake region (most motel including the Sheraton are offering off-season rates).

Members who plan to fly (to nearby Rochester Airport) are reminded to read information on page 4, March OTB concerning car-pooling from the airport.

Note on the map (below) a new dual-lane highway just north of the Sheraton which by-passes Canandaigua if you wish to visit the AWA Museum at East Bloomfield.

Registration with meals must be made through Treasurer Dexter Deeley, 8 Briar Circle, Rochester, N.Y. 14618 BEFORE Oct. 10. Unlimited registration at door. Note: Absolutely no admittance to any activity without Registration Badge!

OPEN HOUSE
A.W.A. ELECTRONIC COMMUNICATION MUSEUM
East Bloomfield, N.Y.

VISITING HOURS
Wednesday, Oct. 21
7 to 10 P.M.
Thursday, Oct. 22
2 to 5 P.M.
Sunday, Oct. 25
9:30 to 11:30 A.M.
2 to 5 P.M.
The Museum will NOT be open Friday or Saturday.
THURSDAY

2 to 5 PM AWA MUSEUM OPEN at East Bloomfield. Many new exhibits.

9:00 AM REGISTRATION desk is open in Main Lobby, Sheraton Inn.

8:00 AM OUTDOOR FLEA MARKET
Motel management has requested that flea marketing and open trunk sales be restricted to a designated area (same as last year). Management will POLICE both areas. Please co-operate. All participants MUST register!

9:30 AM INDOOR FLEA MARKET
Available to AWA members without cost who have registered for Conference before Sept. 15
Rules: 1. Tables and chairs will be provided. Merchandise restricted to small artifacts: vacuum tubes, books, magazines and other small items (no large receivers, etc.).
AC outlets provided for tube testers.
2. Itemize type of material you plan to sell/trade and indicate whether you will need a half or full table.
3. Mail this information BEFORE Sept. 15 with a self-addressed postcard with your Conference Card to Dex Deeley. You MUST pre-register to enable committee properly allocate free table space. All material must be removed before 5 PM.

8:00 PM VACUUM TUBE SEMINAR
conducted by Pat Dowd, Lauren Peckham, Floyd Lyons and Bruce Roloson
First Section: Rare Tube Identification. The experts will help you identify tubes and early light bulbs without markings, etc.
Second Section: Vacuum Tube Appraisal. The Committee will select various tubes and give their approximate value. Members are encouraged to bring samples.
(This promises to be an informal fun session. Everyone welcomed!)

FRIDAY

8 to 10 AM CHECK-IN for GENERAL AUCTION (Limitation on sales)
Important! There are certain restrictions on items for sale. Registration form and information available after Aug. 20 by sending SASE to: Lauren Peckham, Ormiston Rd., Breesport, N.Y. 14816 (Note: 10% of sale to Museum Fund.)
(AWA is not liable for any flea market transactions or auction sales.)

8 to 10 AM CHECK-IN for OLD EQUIPMENT CONTEST Ralph Williams, ARCA
(Right corridor - first floor. See Categories on last page of program.)

8 to 10 AM CHECK-IN for VACUUM TUBE Contest. (Special Room, 1st floor)

9:00 AM Promptly! LADIES TRIP leaves at Main Entrance.

9:15 AM A.W.A. AMATEUR MEETING Ken Gardner, Chairman
This is the big gathering for radio hams. Meet the "gang" who check in on the various Nets and listen to tape-play-back of the 1981 OT Contest signals, etc.
10:30 AM  **HELP WANTED!**  Special program for SOWP, OOTC, QCWA, MTC.
Lou Moreau, W3WRE, has spent the past year researching the origin and use of the distress call. The illustrated talk will reveal some unknown and interesting facts.
10:30 - 12:30 PM Preview of items to be sold. (Buyers/sellers must be AWA member.)

11:45 - 1 PM **SPECIAL LUNCHEON**  (buffet) in dining room overlooking lake.

1:00 PM  **GENERAL AUCTION**  Joe Pavek and Bruce Roloson, auctioneers
One of the big events of the Conference. Participating members will have seating preference. Bidding Cards available at Registration Desk. Payment of auction sales at Registration Desk between 9:30 - 10:30 PM otherwise by mail in early November.

7:00 PM  **PIONEER DINNER**  Old Equipment and Vacuum Tube Contest Awards

8:00 PM Entertainment: **SUPER HOOPER-DYNE LIZZIES**  The adventures of a radio-controlled Model "T" Ford! An early Mack Sennett comedy. Old time piano accompaniment provided by David Peckham.

9:00 PM  Annual **ARCA** Meeting

**SATURDAY**

9:00 AM  **COMMUNICATION INTELLIGENCE**  Will Jensby, W5EOM, DL4IA
A fascinating report (illustrated) on secret radio transmissions and cryptanalysis. This is something different.... don't miss it!

10:00 AM  **THE HORN SPEAKER**  Floyd Paul W6THU with Perry Ferrell Mod.
This program is most appropriate with current speaker interest. Discussion will cover subjects such as brands, types, restoration, etc. A "must" for the collector.

11:00 AM  **UNUSUAL TABLE MODEL RECEIVERS**  with Ross Smith
A short slide presentation showing unusual table model receivers made in England during the 20's and 30's...... design unlike any seen here in the States.

12 Noon  **SPECIAL LUNCHEON**  again in the dining room overlooking the lake.

12:30 PM  **LADIES LUNCHEON and PROGRAM**  Tiffany Room

1:30 PM  **THE MAGNAVOX COMPANY and its PRODUCTS**  Bob Lozier
A brief history of the Magnavox Company and the wide variety of products they manufactured. Valuable information for the collector and historian.

2:30 PM  **SHOW and TELL**  with Mel Comer and several guest speakers.
Our Moderator has promised some unusual and unique solutions for the collector and restorer. Always a popular program....

6:00 PM  **COCKTAIL HOUR**

7:00 PM  **ANNUAL BANQUET**  The Grand Finale! ... an evening of fellowship that brings the Conference to a close for another year. Presentation of HOUCK, TYNE, ELLE, MATLACK and OT Contest Awards, plus the usual fine "fun" awards.
Recognition of the youngest and oldest present as well as the member who traveled the greatest distance. Special prize drawings (including a receiver) for all those in attendance!
(Suggestion: Register for banquet early. Limited seating to prevent over-crowding.)

SUNDAY: A.W.A. MUSEUM OPEN 9:30 to 11:30 AM and 2 to 5 PM.
OLD EQUIPMENT CONTEST

LOCATION: Meeting room on main corridor at right of Motel Registration desk.

TIME: Check in equipment Friday morning between 8:00 to 10:00 AM. Remove equipment Saturday afternoon. Guard on duty at all times.

CLASSIFICATIONS
1. Crystal receivers
2. Regenerative receivers
3. Tuned radio amplifier receivers
4. Superheterodyne receivers
5. Receivers not otherwise classified
6. AC-DC Midget receivers
7. Spark transmitters & auxiliaries
8. Tube transmitters & auxiliaries
9. Pre-WW1 catalogs and documents
10. Magnavox equipment (any type)

There will be ribbons for 1st, 2nd and 3rd places in each category. There will also be Best of the Show selected from first-place winners. Full description of each category in the September OTB.

Ralph Williams, Awards Chairman
(Equipment on display Friday PM and Saturday during day.)

In addition to the above categories, there will be two special awards each with a handsome engraved plaque and honorarium to be presented at the Banquet.

ELLE CRAFTSMAN Award - the best home-made receiver.

MATLACK TRANSMITTER Award - for the best home-made or restored amateur transmitter. The transmitter may be one entered in the Old Equipment Contest above. It must be operable but not necessarily at time of judging.

OLD TIME TUBE CONTEST

TUBE CATEGORIES:
1. Arcturus Blue series (Group of 2 or more.)
2. Rectifier tubes (includes mercury arc, up to 1930 vintage.)
3. Special purpose tubes (non-radio such as Geissler, X-ray, to 1935.)
4. RCA Series (group of 6 or more, up to 1930.)
5. World War I Period (One or more tubes used by Signal Corp or Navy.)
6. European Tubes (Any country up to 1930, singles or groups.)

Entrants can enter ONLY THREE categories. AWA will provide special display boxes for protection of tubes which must be picked up between 4 and 6 PM Saturday.

LADIES' PROGRAM

Another excursion with luncheon is planned Friday (9 AM - 5 PM). See "flyer" for highlights.

LADIES' SATURDAY LUNCHEON and PROGRAM will be held in the TIFFANY Room (adjacent to the Sheraton's Main Dining Room) 12:30 PM. Sign up early for this event. There will be gift drawings.

Motels near Conference - There are numerous small motels in the area with rates as low as $15. The Sheraton is usually booked well in advance, however, there is an occasional cancellation. See "flyer" for listings.
**Transmitter Tube Checker**

Here is a quick and simple way to check the emission of transmitting tubes. Use a new (or good) tube for calibration (or check point). Adjust the plate current for about 80 ma. (for tubes such as the 811) -- replace the good tube with the questionable one. If the plate current doesn't approach the value of the good one -- the emission is down.

--Chuck's Ham-Shack

[A better method is to apply higher voltage with adjustable grid bias. -- Ed.]

**Faded Tube Numbers**

The tube type number is often printed on the side of the glass type tubes and through frequent handling, the number soon becomes unreadable.

I overcome the handicap by dipping the glass portion of the tube in ammonia and allowing it to dry. The numbers then stand out clearly. Powdered ammonia may also be used by spreading it on the surface of the tube and then dipping into warm water and allowing it to dry.

**LOUDSPEAKERS and CIRCLES**

Frequently, horn speaker bases need a new circular cover; perhaps that AC/DC midget you just found requires a new grill cloth frame (with a circular hole same diameter as the speaker)... And... no doubt you have many other uses for a really good circle cutter...

Again, Brookstone to the rescue with catalog #P-6388, a die-cast Circle Cutter that cuts perfect circles every time in paper, cardboard, matboard, wood veneer, cloth, rubber, soft plastic, etc.

This superior tool is adjustable to any diameter from 1.75 to 8.25 inches and is also calibrated in millimeters. A razor-sharp steel blade makes a 90 degree cut as the tool is rotated, and 3 extra blades are included.

Matboard (1/16") serves adequately for speaker requirements mentioned above, and you'll be amazed at the accurate and professional results attainable with this fantastic circle cutter! Get it from: Brookstone, 127 Vose Farm Road, Peterborough, New Hampshire 03458 It's $9.95 and well worth the price.

---Gordon Eklund

**AWA NET LIST**

An up-to-date list of all AWA Net Members is now available. The list includes both CW & SSB participants and gives call, handle and QTH. Send SASE to:

Ken Gardner
42 Oakdale Ave., S.
New Hartford, N.Y. 13413
How does a member from overseas react to an AWA Conference? The following is direct copy from the British Vintage Wireless Society's Bulletin. The author and editor is Anthony Constable of London, England.

Thank you, AWA, for inviting me to such a remarkable Vintage Wireless meeting. They say that when two Englishmen get together they form a club (not unlike a secret society!) but when two Americans get together it is my impression that a convention (not unlike a jamboree!) quickly follows.

The AWA meeting was just one of those unbelievable occasions designed to make the casual visiting Britisher feel like 'Little Orphan Annie'. But, of course, I wasn't entirely a casual visitor... I came armed with gifts and slides... but despite the preparation and all the previous graphic descriptions of the meeting given me by Bruce Kelley and others, I was overwhelmed by the high degree of professionalism shown in all aspects of this 'Amateur Organization Devoted to the History of Wireless', to quote one of AWA's own understatements.

This was the most important message that came home to me during the few days I was at Canandaigua—AWA's sheer professionalism. My visit started before the meeting with a few hours of dusting and polishing at the AWA museum—under Bruce's watchful eye! And here at the Museum is where AWA's professionalism is most noticeable. Apart from a unique collection, the arrangement and organization clearly show the extent of the technical and historical expertise of this 'Amateur' body.

The various events which took place at the three day meeting also showed this very high standard—the talks, auctions, exhibitions and judging, and the flea market itself were all events from which I personally learned a great deal.

The majority of AWA members are ham radio operators in contrast to the very few hams we have in BVWS. This unifying interest of AWA members is evident in many of their activities and their conversation shows that they do not only meet once a year at Canandaigua but have regular meetings 'on the air'. I was privileged to participate in this 'net' activity one evening when Bruce switched on his transmitters and receivers and brought in par-
[Continued from previous page]

tradition. So let me just thank all of you without names for everything.

I should perhaps mention that Dave Brodie took an active part in my after-dinner performance by getting things going with a sort of 'chat show' approach in which he asked all the right questions.

BVWS members may like to know that I took the opportunity of presenting to AWA one of the choice components from the Brookman's Park Transmitter - a teak boxed condenser mounted on a presentation block of similar wood and decorated with two labels (apart from the very original Marconi label), one of them being the brass label issued by BVWS for use on all the components issued and the other being a special label we had engraved.

It stated that the condenser was presented to AWA from BVWS in September 1980. This component is now in the very good company of the other treasures at the Holcomb Museum. The president of AWA, Chuck Breelsford, accepted this little gift on behalf of AWA at the Pioneer Dinner.

AWA has wisely elicited the very keen interest of good professional historians and museum personnel. Two of these, Elliot Silovitch and Susan Douglas of the Smithsonian gave a most delightful performance of skill and humour when they showed unidentified pictures from the George Clark collection and made various suggestions about what the pictures were really saying... some very well thought out suggestions with the occasional glint of wicked humour! A panel of judges managed to keep up with them in a very memorable performance of wit and counter-wit.

I left Canadalegra early morning on 28th September when I was whisked away by Bob Morris and Brother Patrick Dowd who were going in my direction to New York City. Patrick Dowd is the 1980 recipient of the Gerald Tyne Vacuum Tube Award and later showed me his incredible collection of tubes exhibited with consummate skill around the walls of the Engineering Library at Manhattan College. Thanks, Pat and Bob, for your good company on that memorable journey from the Finger Lakes to the Big Apple.

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**NEW MEMBERS**

who are (or were) with electronic communication or industry:

  Dir. Eng. Electronic Development

- **J. B. Crawley**, BC stations WMSK, WNCK, WPTN, WCND, etc.

- **Marcel Vallerie** (Rimouski, Que.)  


- **Dr. Keith Rose**, Microwave Communications


- **Carl Moser** (WN4YST) Western El. Co.

- **Carl Schaaf** (W4GS, W4PEI) R.R. tele.

- **Julius Hoffer** (W1DL) GTE, Raytheon, Sylvania, etc.

- **Charles Hlavac**, Pacific Tele., American Satellite Corp., etc.


- **Clinton Webber**, Central Dynamics, Ltd.  
  (Montreal, Quebec)

- **Vic Clark** (W4KFC, ex-W6KFC, W9DVO)  
  Broadcast stat. KOY

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**David Dodson** (W4Ze, 8B4EY, 9ACG, etc.)  
Radio - Pan. Amer.

**Warren Knecht** (WH6AGE, KW6BG, KH6AXW) Elect. Eng. CAA, FAA, RCA.

**Douglas McManus**, Stations WIRQ, WBSU

**Richard Nebel** (W5DBQ) Mfr. radio quartz crystals


**John Goff**, Bell Tele. Labs

**Wallace Cashwell** (W4EFE) Com. WPD

**Lawrence Wanja** (W5JS) Engineering Federal Communication Com.

**David Potratz**, BC stats. WAXX, WUEC

**Dermond Whelan** (St. John, Newfoundland) Celtic Enterprises

**John Gilbert** (VE3CXL, ex-VE8OW)  
Dir. -Gen. National Tele., Dept. of Communications, Canada

**Robert Siff** (K4AMG, ex-W1POA, KV4FO) TraDyne, Inc.

**Franz Mock** (Vienna, Austria) Curator National Radio Museum

**Gregory Huffman** (N2ALC, ex-W6QXE)  
Chief Radio Tech. US Navy

**Frederick Stoffeld**, Manager Radar programs, Teledyne Micronetics

**Dr. Lark Daniel** (Pueblo, CO.)  
Broadcast station announcer

**Chuck Owens**, Stations WMI K, WFXY  
Owner of WSYQ

**Albert Karz** (KA3AQG) Westinghouse, BC station WOR
The Atlantic Cable

Situated at the navigational crossroads of the North Atlantic, the island of Newfoundland became a crucial link in communication between the New World and the Old in the 17th and 18th centuries. This strategic location also ensured that Newfoundland would play an important role in the global communications revolution which followed the invention of the electric telegraph in 1837.

By mid-century, a vast network of telegraph lines connected the major population centres in Europe and on the North American mainland. The gulf between them of the 2,000 mile wide Atlantic ocean remained a major challenge to the science and enterprise of the Victorian era.

A trans-Newfoundland telegraph line with a submarine cable link across the Cabot Strait to Nova Scotia was projected in 1851 by Frederick Gisborne, an English telegraphic engineer. With Gisborne's bankruptcy three years later, responsibility for the project was assumed by an American syndicate headed by Cyrus W. Field. For Field, the Cabot Strait cable was simply a beginning: from the outset of his involvement in the enterprise he determined to complete a submarine trans-Atlantic cable line, connecting Europe and America via Newfoundland.

After one abortive attempt in the summer of 1855, Field's New York, Newfoundland and London Telegraph Co. succeeded in laying a submarine cable across the Cabot Strait in 1856. Also completed that year was the Company's trans-Newfoundland surface line. The entire operation, which established a telegraphic link between New York and St. John's, cost over a million dollars.

Meanwhile, Cyrus Field busied himself in England with the technical problems of submarine cable design and with financial negotiations to raise the estimated 1 1/4 million dollars required for the Atlantic cable-laying operation. Drawing on the experience of English cable pioneers, it was decided to fabricate the cable using a core conductor of stranded copper, insulated with layers of "gutta percha", a rubber-like extract recently discovered in Malaya. This highly durable material possessed great insulating properties, and was one of the first industrial "plastics" ever used on a commercial scale. It was protected with an
outer covering of pitch, tar and wax and an armoured sheath of spirally-wound heavy gauge iron wire.

The British and American governments supported the venture with financial guarantees and with provision of steam-powered ships specially modified for cable laying. In August 1857 the USS Niagara and HMS Agamemnon made two unsuccessful attempts to lay the cable from its Eastern terminus at Valentia, Ireland to the Western landfall at Bull Arm in Newfoundland's Trinity Bay. Re-equipped with improved machinery, the same two vessels made three further abortive attempts in June 1858. A sixth attempt was made in July when, despite severe mid-Atlantic storms, each vessel landed its cable end successfully at the assigned destinations.

The momentous achievement occasioned great public rejoicing in New York and London. Inaugural messages of congratulation were exchanged by U.S. President Buchanan and Queen Victoria, and Cyrus Field was feted as the man of the hour. However, even as its success was celebrated, some unknown rupture ruined the cable's conductivity. Within two months it was dead.

After such a disappointment, raising capital for yet another attempt was a slow business, even for a promoter of Cyrus Field's tenacity. The outbreak of the American civil war, which discouraged speculation in that country, added to these difficulties. In 1864, however, fabrication of a new Atlantic cable was begun, superior to the 1858 model in terms of insulation, tensile strength, lightness and non-corrosiveness. It was also manufactured in a single length, 2300 nautical miles long and weighing 5000 tons.

To carry and lay such a cable there was only one suitable vessel then in existence, the mammoth Great Eastern. Launched in 1858, she was almost 700 feet overall, 22,500 tons displacement and five times the size of the largest ship then afloat.

In July 1865 the Great Eastern made a first attempt to lay the new cable from Valentia to the re-sited Western terminal at Heart’s Content, Trinity Bay. After two unfortunate incidents of suspected sabotage, the voyage ended in failure with the loss of the cable 1200 miles out. After more than a week of trying to grapple the lost cable, during which time all the vessel's lifting gear was also lost, the Great Eastern was compelled to return to England.

Yet another attempt was made in July 1866, again with the Great Eastern, but with an improved galvanized cable of far greater tensile strength. On this occasion the ships of the cable fleet had been equipped with extensive lifting and grappling gear since it was intended to recover and complete the cable lost the previous year. The 1866 expedition passed off with monotonous efficiency, and after an uneventful fifteen days passage, a successful landfall was made at Heart’s Content. Pausing in Trinity Bay for two weeks to re-coal, the Great Eastern retraced her course to mid-Atlantic early in August with three consorts. After continual round-the-clock efforts, the 1865 cable was grappled successfully on September 1st and spliced to the remainder of its original length on board the Great Eastern. A week later the second trans-Atlantic cable was landed at Heart’s Content. Elaborate public festivities were organized on both sides of the Atlantic to celebrate the greatest technological achievement of the age.

Other cables were laid in the following decades and the Heart’s Content station remained in continual service, becoming a focal centre of Western Union Inc.'s international cable system in the present century. The facility was closed in 1965 after trans-ocean telephone cable and satellite communication reduced it to obsolescence. The site consists of the telegraph building constructed in 1903 (the third terminal building erected at this location) and a larger extension added by Western Union in 1918. On site may be seen instruments and equipment used at Heart’s Content, as well as interpretive displays which explain the station’s role through almost a hundred years of cable history.

REGIONAL MEETING

Many members were disappointed in Dearborn cancellation. The Ford Museum and Greenfield Village is a most unusual attraction which requires several visits to fully see and appreciate the numerous exhibits. With this in mind, the Board will explore the possibility of having a one day Regional Meet at the Museum sometime in the future....
OLD TYME HAM ADS

OLD TYME ADS are FREE to members interested in collecting and restoring historical equipment and memorabilia. They are not to be abused.

RULES FOR ADS:
1. Ad MUST be written on separate sheet of paper—not part of letter. Send SASE for acknowledgement.
2. Material must be over 25 years old and related to radio or electricity.
3. Give full address and zip.
4. Ad will not print repetitive ads or ones indicating regular price for profit.
5. The Association is not responsible for any transaction.
6. AWA retains the right to reduce size of ad if over 8 lines including address.
7. Only ONE ad per issue per member.
8. Deadline for ad is 6 weeks prior to mailing date:
   March issue -- JAN, 16
   June issue -- APR, 15
   Sept. issue -- JULY, 15
   Dec. issue -- OCT, 15

Important: To insure delivery, all out-of-state mail should be sent one week prior to due dates noted above.

Mail all ads to:
RICHARD RANSLEY
17 SHERIDAN ST.
AUBURN, N.Y. 13021

WANTED

--AK model H horn speaker, AK model 20 manual; horn speaker and manual for Amrad Nouett X-5522. Phil Benson, 103 W. Main St., Morrison, IL 61270 Tel. (815) 772-7506
--Hallcrafters HT-7 req std.
--Hallcrafters SR-130 receiver, 5-35 pan adapter and manuals for same.
--G. Barber, P.O.B. 31654, Aurora, CO 80041, Telephone 303-753-2743 after 1800 local
--U-1220 or U-1235 speakers, Federal AX-1 cabinet, two good Federal AFT's, battery cable for Radiola 28. Have radio.
--McGraw-Edison receiver and Guthman U-36 Transmitter. 1933, 34 and 35 QST's for postage. David Thomas, 1212 E. Conanche, Tampa, FL 33604
--A. J. Rannell catalog for 1899, 1909 and 1919. Also instruction books (or Xerox copies) for communication receivers made by Stone Telephoto and Graphic, G. L. Chadbourne, 530 Midway St. La Jolla, CA 92037
--mirrored glass radios (pink, blue, etc.) any condition. Will trade early battery sets. Also need pictures or sales literature of same. Also Sparta service and parts manual '37-38. H. A. Alexander, JR., Box 866, Milwaukee, WI 53201
--Bostone 70, need circuit diagram, parts layout, photos. Any info available to help me wire this set. 272-0925; c/o 522 Burrin Ave., Winnipeg, Manitoba R2V 106 Canada
--357 December 1915 to April 1920. For personal collection. Will pay cash. Ken Miller, KS1R, 6604 Q. George Washington Dr., Rockville, MD 20853 Tel. (301) 774-7709
--early brass blade table fans and any odd or unusual fans, especially old motor types such as Edison or Meco. Richard Cane 8391 N.W. 21st St., Sunrise, FL 33322
--set of readers manuals. Will pay transportation costs. Write or phone Dern Whelen, 31 Midland and Telephone John's, Newfoundland, Canada A1A 3J2. Also want 6 pin Wunderliche tubes. Tel. (705) 754-0892 or (709) 727-2976

WANTED

--books...would like to buy the following: "Expanding the Wireless Station" by Edelman. "The Wireless Man" by Collins. Please state condition and price. Bob Ryan, P.O. Box 3039, Anaheim, CA 92803
--Hallcrafters SX-122A. Also Allied/Knight Ocean Hopper with plug-in coles. Tony Scott, 2010 W. Waukegan Rd., Lake View St., Kaukauna, WI 54130

--books: "Life of John Stone Stone" "Big Business & Radio" "All-Electric Receiver Design" by Hesse. British radio mags and OZ 3 tube. Lost at Canandaigua for 1944. Urgent campaign button. Alan Douglas, Box 225, Boscasset, MA 02550
--Majestic 181 jr supply (prefer B-6-6) and cable to radio, knob, speaker, phonograph is good, tuning condenser. Radio's radio Vol. 1, 2, 3. Info on Japanese National OCU K-1420. Freshman Masterpiece. V. Kerneghan, Box 2065, Sierra Vista, AZ 85635
--Scott radio in Napa console (27-15 in 1688, 2600 console); any original Scott literature; Scott FM tuner; Scott FM converter (preraw band to new band). Bob Whelan, Bird Lane, Waxahachie, Texas 75165 Tel. (214) 937-2726
--any empty Crosley overhanging 113 cabinet (older style); any Crosley console sockets. Who has empty box that Crosley FUP came in? Write Dave Crocker, Tavern Path Plymouth, Mass. 02360
--need manual for National Model 183. Will buy, borrow or copy. E. M. Fowler, 124 Holly Lane, Morristown, N.C. 28557
--model 355-T or 42-355 1941 AWT radio, radio does not have battery in excellent condition. Send photo & state concd, & price & postage. James Martes, 1022 E. Hayward, Independence, KS 67056
--schematic, instructions & other information for my Marconi Standard Sig. Gen Type T. F. 114 G. Please write Peter Cordey, B.F.S.A, Fleming St. 14, 3000 Hannover 21, West Germany
**WANTED**
- need knobs & pointers, battery power supply, instruction manual or booklet for Zenith 5A10 radios. Also need horn speaker for 3R or 4R.
- E. Climent, 6009 De Charette, Montreal, P.Q. H1M 1J2 Canada
- "need two Acme F2 rf fixed type transformers (not af or lf), also one Acme F3 rf xfrmr. 400 to 600 ohm panel mount potentiometer, 72 ohm waste, and AK coupled circuit tuner. Will buy or trade. J.N. Clapp, 1202 W 5th, DeWitt, Iowa 52742
- "early Transmitter kits, WRL CW, Message 2-CW, GEM 5 watt, Philmore NT-200, ASW 245, etc. F.M. Wood, KB5QG, 3122 Ann Arbor, Michigan, 48103
- "2 piece Westinghouse re broadband receiver. Cabinet for Zenith 6K30 at Jolivet, 5497 College Ave., Quincy, Ill. 62301
- "Cross'volt" 3 tube SW battery receiver, using 7CQ tubes, etc. in metal cabinet. Also need coils for National 1-10 and LF/BC for HRD. Ed Pompea, 2111 Trent Ave. Colorado Springs, CO 80909
- "speaker, front panel and 4 brass escutcheons for Scott ALL-Wave 15. Reproduction front panel is okay. Estate price. Rick Taylor, 1736 E. Lee Road, Chattanooga, TN 37421
- "AK grid leak. large 3-tube socket for AK 20. Manuals or photocopies for RCA 151 scope. Solar Radiation cap tester and a Triplet Model 1501 tube tester. Bob Lindsey, 901 Ferngrove Drive, Cupertino, CA 95014
- "5AK for operation and service manual or schematic for Multi-meter RS-25 U/C Mg. by Sentinel Electronics Co. on US Govt order. Bill Booker, W4UWJ, 8209 Old Westport Rd., Louisville, KY 40222
- "Washburn, VanCamp, Cardinola, Diamond T, Lyradion, Aladyna, King Cole and Melody radios. Cathedral or Mentel sets by Steinlet, Kennedy, Jesse French, Sterling. Any condition. Frank Heathman, 1011 S. 75th St., Logansport, IN 46947
- "case for Radiola 24. Will trade cash or radios. Ben Kittredge, Ocean View Hwy., Watch Hill, RI 02891
- "need info on audio xfrmers in Clapp Eastham type H2 audio amp. unit. Help! Arthur Harrison, 1021 Falcon Dr., Columbia, MO 65201
- "used correspondence course for code instruction by Carl Price, Box 340, Nichols Superchi, 467 High St. Apt. 24 Hampton, NH 03824
- "character and novelty radios (eg. Mickey Mouse, Charlie McCarthy, Coca-Cola) from the 1930's & 1940's. Howard Brenner 106 Woodgate, Rochester, NY 14625 Tel. (716) 482-3641
- "Atwater Kent 82 chassis, working not. Also Majestic Model 20 chassis. 1st owner speaker. Peter Yancker, 835 Princet Pl., Watson Woods, MD 21122
- "test equipment and service literature to construct replica of '30-40's radio repair shop. Please send any info to Bill Springer, 923 Nola, Houston, TX 77088 Telephone (713) 416-2244
- "underground manual, Radio Amateur Handbook, 2nd ed., 1950. 6 inch spkr with 2500 ohm field coil, coil unit to go with Remler 8930 control unit (pg. 121 VHF) call or write Tom Rood, Road Box 1854, Ponta, Alberta, Canada, TIO-210
- "operating info and schematic for US Navy WWII "Model RTH-4 Radio Equipment" specifically types CT-46077 and CT-46076. Ron Boucher, Vintage Radio Servicing, 375 Cilley Road, Manchester NH 03102
- "magazines such as SW Craft, SW 6 TV, etc. Need top shelf articles for SW club bulletin. William Taylor, Jr., Box 132, Wearabout Road, Unionville, PA 19375
- "Crosley 9SA chassis or complete receiver (Show Boy or Songster). Thank you. Greg Ducketer, 35 Main St. East, Bismarck, ND 58501
- "RCA television TRK-12, TRK9, TRK-5 & TT-5. Also SAIPE & 12AP4 picture tubes & other pre-war TV's. Have some radios & Edison phonographs to trade. Jeff Landero, 25 Fenton Rd., Danbury, CT 06810
- "if high voltage xfrmr for Philco 3 TV will consider xfrmr for 7" Motorola or Admiral. Also Maloher coils #11-1026 & #14-904 & #14-7560 spoiled condensors. Rodney Schrock, 4241 Lincoln St., Somerset, PA 15501
- "still looking for a Sonatron 3 tube RC Amplifier-help. Gary Schneider, 6848 Commonwealth Blvd., Parma Heights, Ohio 44129
- "metal tubes 5A7, 6AK7, 25Z9, 7A7L6, 6GT7, 14AF, 2825, will buy or trade. Walt Lehnert, 5209 Minnehaha Blvd., Edina, MN 55424
- "good 851 preferably unused. Keith Olson, W7FS, E15470, Hwy 106, Belfair, WA 98528
- "Nat. SW, REL 275 or similar regen. Also want old texts, eg., Morecroft, Vanier Bijl, etc. Write John Crowe, W6ULZ, 22050 Independencia St., Woodland Hills, Calif. 91364

**WANTED**
- "DeForest D-10, D-12, Radiola VIII, 17,18,19,24, 1800, AD, WE 7A Amp.; Fred Eisman N7R. Want AK breadboards, battery & early electrics & U2125 spkr. Fred Ritter, W6FI, 930 First Place, Longwood, FL 32750 Tel. (305) 339-5727
- "Shure, 77, Ham Radio Mags 1923 to 1937. Write your needs. EAC E. J. Wasilewicz, 229 Sarles Ln., Pleasantville, NY 10570

**Important**
New address for OTB ADS: Send all mail to Secretary/Ass. Editor: Richard Ransley 17 Sheridan Rd., Auburn, N.Y. 13021
- "1939 Skybuddy to trade for an earlier model with plastic covered airplane dial. James Fred, RI, Box 41, Cutler, IN 46920
- "hand woven grillie cloth. SASE for price and sample. Bob Robinson, 232 Cider Road, Tilton, NH 03276
- "continuity battery radios, etc., various, spark equipment, tubes all in exceptional condition. Is part of recent large collection. Send $1. for listing & prices. All immaculate condition. S.E. Hernandez, River Road, RJ61, Essex, CT 06426 (203) 767-1410
- "Radiola U2120 horn speaker, Peerless cath. spkr, Radiola V, AK breadboard, Musc Master 14" mahogany horn spkr. No price. Want unusual horn speakers in trade. Floyd Paul, W5TNU, 1545 Raymond, Glendale, CA 91210
- "complete collection of early battery radios, tubes, speakers. Large SASE for list and info. Serious collectors only please. John Alley, 48 Judson St., Raynham, Mass. 02767
Meet the Collectors by RODRIGUES

Schneckley Antique Radio Club
Summer Meet, July II, Flea market, auction, etc. For info, write: Allen Tomisman, 55 Walter St., Albany, NY 12204
(Tele. 518-436-7767)

"...oh stop it Joe — you can't make a 201-A!"

FOR SALE/TRADE

-sell collection of 7000 modern & semi-modern tubes, some carbon lamps, antique radio sets and parts. SASE for tube list. SASE for list of sets and parts. Bill Lavery, R.D. 1, Box 62K, Eglinton, NY 02310

-riders Vol 1-23 plus index. Excellent condition. $500. Alex Black, 102 Mineola Dr., Syracuse, NY 13234

-duplicate keys, bugs and sounders. R. Cutler, 701 15th St., Glenwood Springs, CO 81634

-GR wave meter 56A8, 5 to 150 MH & type 758A $5 to 400 MH, also Radio News, Radio Craft from 30's, cat log, Harry Allen Robertson catalog etc. Make bids. Write: Briggs, 518 Boulder, Duxon Hill, MO 60021

-HRD, RM 54, Neutrodyne, loose coupler, spark gap, for spark coils & much more. Send SASE for list. R. Cohen, 13193 Hayward Place, Tampa, FL 33624

-Connecticut TEL US Army SCR-65 first type used in airplanes in 1939, went AK-9 or 9C or Kennedy 281 & Amp. David Shanks, 115 Baldwin St, Bloomingfield NJ 07003 (201) 746-8820

-Alwate Kent Model 52 (all metal floor model, 240 ac) is in good working order and excellent condition, complete with tubes. $75. Prefer not to ship. John Robert Bowersall, 235 W. Sheridan Ave, Annapolis, PA 17003

-early 3 tube AK breadboard, Zenith Super 8, AK cathedral, Edison Cylinder phone & much more. Send $1 for list. Want outside horn photographe. C. A. Seidell, 925 Grants Pass, OR 97526 Tel. (503) 476-1078

-Riders Manuals, old car radio manuals, parts, radios, tubes at 50% ea. SASE. 170 list. Want loop for Radiola 25 or 28, binding post for W.E. 7A Amp, old style spark cloth. Bruce Marbach, 1116 36th St., Sioux City, Iowa 51104 (712) 258-6855

-Fischer spark vern, model 6 meter & nameplate missing, 2 AK tube mount variable condensers, 2 AK type 31 tuners & other AK B8 parts, Scott 800-B mint in cabinet, Scott All Wave 15 working, Daniel Vodianoff, 1141 Yorkshire, Cross Pk., MI 48030

-Scott Phantom Deluxe AM/FM in Sheraton cabinet $350 but prefer to trade for Philharmonic (any condition) with cash adjustment. Peter Best, Box 55, Bridgewater Corners, Vermont 05035


-Riders TV manuals, Vol 1 thru 27. W/2 Vol 13 missing $100. Have some dupes & $6 ea post plus postage. SASE with inquiries please. Herman Fatone, 10 Jackson St., Sloatsburg, NY 10974 Telephone (914) 753-2090

-Radiola 11, Hallicrafters S-40, AK30, AK20 large, Freshman Masterpiece, mags & catalogs. David McKenzie, 75 West 3rd St., Hialeah, FL 33012

-National recr Model HFS (28 to 250 MH) w/plug-in coils, home brew power supply. Will trade for either Heath AF-1 or Heath AF-2 recr. or sell for $50. C. Stewart Tyler, 1229 Willowbrook Dr., Suffolk, VA 23436 Tel. (804) 934-2115

-Notice: I have received several requests for lists. There are no lists. Items previously available were excess & I let them go due to health. If you have item needing repair & have gear to swap, write. Rod Goodwin, Box 1854, Ponoka, Alberta, Canada, TOC-2M0

-Hallicrafters SX-25, SX-100; sell or trade for Sprague Black Beauty Mylar paper capacitors. Henry A. Swartzman, 123 Bridge St., Cortland, NY 13045

-Bosch Little Six, Croxley S1, Radiola 20, QME, Hallicrafters and HRO 60 recrs. Also many other sets & parts. SASE & $5 for 4 page Sale/Trade list, or your list for mine. Chet Wisner, W1YWS, 1014 Main St., Baldwin, Mass. 01225

-Pocket radio hit (1950s), complete with loopstick antenna clip & earphone, just like advertised in magazines in the early 50s. Want info, ad, etc., on Midway Radio-made seal sets in 50s. Richard Korf, E. O. Box 291, Grand Harlos, MN 55046

-1930 US Government Amateur Call Book, complete. What have you? Leland Smith, W5KL, Route #3, Box 38-A, Jasper, AR 72634


Send all WANT ADS to: Dick Ransley, 17 Sheridan St., Auburn, N.Y. 13021

DON'T FORGET!
I purchased the above receiver about 10 years ago in a junk shop and immediately started to search for a cabinet--without success... for the simple reason the set never had one...! The IX was designed to fit into a cabinet with a windup phonograph. I found the panel outline was made in three sizes: to fit a Columbia Grafonola, a Victrola or a phonograph cabinet of custom design.

The circuit consists of 2 stages of broadband un-tuned rf (RCA calls it "semi-tuned rf"); detector and 2 stages of audio. All five tubes are UV-199's.

An unusual feature of the set is its depth... it is very shallow, the reason being I suppose, is because of cabinet space. The same sound chamber or horn is used for both the radio speaker and the acoustical phonograph. I date the set either 1923 or 24. (Chas. Willet)
THE TUBE COLLECTOR
Conducted by Gerald Tyne and Lauren Peckham

THE 204- A TUBE DESIGNED BY A COMMITTEE
by William I. Orr, W6SAI

An old joke says that a camel is a horse designed by a committee. This certainly seems to be a saying that applies to the old 204A triode transmitting tube—a "bottle" remembered with nostalgia by many Old Timers.

Born in 1924, the 204A was the ham's dream tube for a high power rig, at least until EIMAC introduced a radically new concept of power tube manufacturing in 1934. Even so, the old 204A remained in use until well after World War II, and no doubt some old rigs still exist around the world that use the 204A.

Vacuum tube connoisseurs have occasionally pondered the design of the 204A. Marketed as a replacement for the UV-204, the newer tube boasted the new X-L (thoriated tungsten) filament which cut filament power from 162 watts on the old UV-204 to only 42.4 watts for the 204A. The new tube, of course, operated at the same filament voltage as the tube it replaced—11 volts.

The puzzling fact about the 204A, as viewed from today, is that the filament current is only 3.85 amperes and that the filament wattage is too restrictive as far as emission goes to allow the 204A to really "sit up and play". Roughly speaking, in terms of average filament emission for a projected life of 1,000 hours, most transmitting tubes of this power rating are rated at about six milliamperes of filament emission for each watt of filament power. For Class C modulated service, where the filament works very hard to supply peak emission, the average milliamperes-per-watt figure may even be lower.

But examine the 204A! This tube was rated at a filament emission of 395 milliamperes, which works out to be an emission figure of 8.35 milliamperes per watt! This is really "sucking the electrons" from the filament and the question arises as to why the conservative tube engineers of the General Electric Company placed such a rating on the 204A when the laws governing filament emission were well known in those days?

Looking backwards, a good guess is that the tube may have been designed in the G.E. advertising department instead of the engineering department. The 204A was expected to do two jobs instead of one. In addition to replacing the UV-204, it was also supposed to replace the UV-205 (also known as the P-tube). To do this, the 204A had to be a direct replacement, and the P-tube had a 20-volt filament rated at 3.85 amperes. In addition, the P-tube had a constant-current rating, which meant that the filament voltage was adjusted to provide a current flow of 3.85 amperes. The UV204, on the other hand, had a constant voltage filament, which called for an adjustment of 10 volts, regardless of the current.

To solve this design conflict, it is presumed the 204A was designed with the 10-volt rating of the UV-204 and the 3.85 ampere current rating of the P-tube. Thus it could be substituted for either, with only an adjust-

(Continued on next page)
ment of voltage required for replacing the P-tube.

This was a clever solution, except that by 1924 the P-tube was on the way out and the number of replacement sockets was very small. But, by trying to make one tube do the work of two different ones, the 204A was handicapped by an underpowered filament which dogged it through its long (and useful) life.

(While researching this story I found out why some of the older transmitting tubes had either an 11-volt or a 22-volt filament. It seems transformers of these voltages were available cheaply and in large quantities. They were signalling transformers for electric trolley lines!)

A LATE REVIEW

Detector Crystal

Congratulations to ALAN DOUGLAS for an outstanding article in the April IEEE Spectrum covering crystal detector development. Much of Alan's article is centered around the work of Greenleaf Whittier Pickard. Exceptionally research and documented.

NEW BOOK BEING WRITTEN

Tom Briggs is currently working on a book covering the history of vacuum tube manufacturers. The material will be an in-depth report on most tube manufacturers including several foreign firms. It promises to be fascinating reading and a valuable reference. He welcomes correspondence with members who have knowledge of early tube companies. Tom Briggs
4018 Juniper Lane, Rte. 3
Orexford, Penna. 18069

A.W.A. SLIDE/TAPE SHOWS

Members at Headquarters have made nearly a dozen historical slide/tape shows in the past 25 years. A new one is in the making covering broadcasting in the 1930's. Featuring Max Jacobson, W3DUG, it will highlight broadcast activities as seen (and heard) by the radio engineer and listener.

ZR SERIES

The recent interest in the radio equipment used by the U.S. Navy on their "ZR" type rigid airships left us wanting to know more about these huge monsters of the past. Bruce Boyd, W3QA tells us.

ZR-1 U.S.S. Shenandoah
Modified German design. Made at the Naval Aircraft Factory in Philadelphia and assembled at Lakehurst hanger. Commissioned in 1923 and destroyed in a storm over Ohio in 1925.

ZR-2 Built in England to German design for high altitude use. Design failed to provide fast maneuvering at low altitudes. Destroyed during acceptance tests in England in June, 1921 with few survivors.

ZR-3 U.S.S. Los Angeles
Built in Germany and delivered by a trans-Atlantic flight in 1926. Designated as a training ship, she had a long and useful career and was decommissioned only after the Navy abandoned its lighter-than-air program after the loss of the "Akron" and "Macon".

ZRS-4 U.S.S. Akron
Built by Goodyear in their hanger at Akron, Ohio. Completed in 1931 and lost in a storm at sea in 1933. 73 perished with 3 survivors.

ZRS-5 U.S.S. Macon
Built by Goodyear in 1933. Based at Moffett Field, Calif. Wrecked off Sur, California in 1935. 2 lost and 74 survived.

SEEKING INFORMATION

Can someone provide information about the principle of passive band-pass tuning followed by un-tuned rf/det stages instead of the customary tuned interstages? The circuit was used in the late 20's and early 30's by such firms as Sparks-Withington (Sparton), A.C. Dayton, etc. Much of the original design was made by Technidyne Corp. who licensed it to interested manufacturers. Don Sutherland, ZL2AJL (New Zealand) would appreciate comments. Write direct to Don or AWA.
WHAT IS IT WORTH?

The answer is, of course......what ever you can get for it......but this isn't always true. Let's give an example. A certain book was published a couple years ago in limited quantity. The author as well as subject matter was controversial. It sold for $10. This same book today has three values.

An admirer and collector of the author will pay as much as $20. for the book since it is out-of-print and difficult to find.

A bookdealer wanting to get rid of out dated books may mark the price down to $5. Then, if one were to go to the local library annual used-book sale......a used copy might just be found for only 25¢!

On the subject of collecting......do you know that one who collects lead pencils is interested in pencilogy......and I just read about a fellow who has collected 800 different golf balls.......

THE PROFESSIONAL HISTORIAN

Members who are doing historical research may find material at Bampton's used book store. A recent catalog from the establishment listed over 600 available books and pamphlets related to radio and electricity. There were several rare books dating well before 1900. For their listing, send a couple International Mail coupons to:

L. V. Kelley, Bampton Books
23 Newport St., Tiverton
Devon, EX16 6NL England

COLLECTING CALCULATORS

I just ran into another fellow who collects early electronic calculators......This is an easy field to get into since the newer solid-state gadgets have only been on the market for the past 10 or 20 years and are still plentiful. Mechanical calculators are another story since early ones have been around for nearly 100 years.

The first calculator was patented in 1850 by a DuBois Parmalee of New Paltz, N.Y. The first practical machine didn't really show up until the 1890's such as one made by Felt & Tarrant. A good bet for a collector would be a machine made by Burrough's around the turn of the century.

WHAT IS AN AVOMETER?

Well, I didn't know until I read an article in a recent BVWS Bulletin. An Avometer is the British terminology for our multi-meter......the little portable type we use to check voltage, resistance, etc. AVO means: Ampere, Voltage and Ohms. Getting smart aren't we......?
**AMERICAN TUBES ABROAD**

A letter from Tudor Rees tells why American tubes (such as RCA) of 1940-1950 vintage can be found in England. It seems that during the last war British manufacturers had devoted all their manufacturing facilities (at least those that hadn't been bombed out) to the war effort. This produced a grave shortage of receivers.

As a result (through the Lease-Lend Agreement) vast quantities of American midget receivers were imported. Obviously, American valves were required for servicing. He tells me they even had publications offering conversion data to adopt American valves to British sets.

A post-script to his letter tells of finally completing the restoration of his Mid-West Royale 24 valve receiver. This may not sound difficult to us but try and find early American components overseas....

**MIGNON RECEIVER**

Yes, the Mignon receiver on page 30 of the December OTB was SOLD after WWI -- but the question still is... when was it MADE... before or after the war? Rumor has it that a quantity of Mignon receivers were impounded in 1916 or '17 and released AFTER the war with a new nameplate....

**VALUE OF QSTs**

We were rather smug when we made note that a set of OTBs sold for $211. -- but how about a set of QST magazines? Several sources indicate a complete set, bound in mint (I repeat, mint) condition, is now worth $5000.

The hooker here is the word "mint". The value of QSTs with frayed or missing covers depreciate at an alarming rate. Like all publications, the early ones have the greatest value. In fact, the value of a QST magazine can almost be plotted on a logarithmic scale: the first issues are worth nearly $200. each (mint-bound) while a current issue can be found in amateur flea markets for 10¢...
Our Cosmic Universe
by John Kraus
Ohio State University
Foreword by Arno Penzias
Bell Laboratories
(Reviewed by W. Reddick)

Members interested in astronomy, particularly radio observations, will find this new book one of the best in recent years. As an arm-chair astronomer, I subscribe to several astronomy magazines and have a shelf of books by popular authors such as Hoyle and Sagan. For my money, "Our Cosmic Universe" tops them all.

The book is full of pictures, sketches and charts for the lay person. Subject matter ranges from our planetary system to Quasar OQ172 on the edge of the universe -- all told and illustrated in simple terms.

Of interest to AWA members is the lengthy chapter on radio astronomy starting with Jansky and Reber. The author even tells how to build a simple radio telescope.

He is most qualified to do so. John Kraus is an internationally known radio astronomer at the large Ohio State University Radio Observatory. He is the author of numerous books on astronomy and antenna design. Radio amateurs know him as W8JK.

297 pages. Hundreds of diagrams and photographs.
$11.50 soft cover, $14.50 hard cover.
Ohio residents add 4½% sales tax.
Shipping $1.

Cygnsus-Quasar Books
P.O. Box 85 Powell, Ohio 43065

Used Radio Books
A large list of used radio, telegraph and electrical books may be obtained by sending a large SASE to:
RADIOGRAPHICS, Box 18492
Cleveland Hts., Ohio 44118
EARLY WIRELESS, A Collector's Guide, is not a book for the average collector of 3-dial 5 tube neutrodynes. It is rather for the advanced collector and radio historian who will find it a valuable reference asset.

The author does an admirable job with drawings explaining early detectors: the Hertz resonator, various coherers, Marconi magnetic and multiple tuner, crystal detectors, the Fleming valve and other early tubes.

He then gives a brief history of early receiver development. Although a British publication, it makes frequent reference to American as well as German, Dutch and French design.

The highlight of the book is the section of exceptionally sharp photographs of receivers and speakers of the 1920 and 30 period which includes many American sets such as RCA, AK, Crosley, AC Dayton and Erla.

I understand the American material came from members of the California Historical Radio Society. A surprise is the hard-bound cover with a color picture of a 1925 flapper tuning an old battery set.

The price bothered me a little, but Bruce Kelley tells me few books of this type were being published, maybe one release a year, and prices were constantly going up. I like the book. Order from:

(Price $19.95 plus postage)
Vestal Press, 320 N. Jensen Rd.
Vestal, N.Y. 13850

or
Two Park Ave., New York, N.Y. 10016

Overseas: (Price £ 9.50 postpaid)
Vintage Wireless Co., 64 Broad St.
Bristol BS16 5NL, Great Britain

SHORTWAVE
Members who like to listen to shortwave broadcasts are advised to obtain a sample copy of a publication called FRENDX. It is printed monthly and averages 58 pages of fine type.

Subject matter: one of the most complete (current) listings of shortwave stations and their activities in the world. In addition, there are special interest columns. Yes, there is even one devoted to old time shortwave receivers edited by Bill Taylor. A recent issue covered the S-M "Round-the-World-Four" receiver.

For a sample copy, send $1. to:
Bill Oliver, 45 Wildflower Rd.
Levittown, Penna. 19057

SELF-ADDRESSED-STAMPED-ENVELOPE
Writing to AWA? Please include a self-address stamped envelope. This will reduce both time and expense for our volunteer staff.
NEW EQUIPMENT
in A.W.A. Museum
(set, parts, magazines, books, etc.)
A1B, WA2ZNC, W6SAI, KB2KY,
Alan Douglas, Al Karz, Serge Krauss
The Association's Museum opened the
first of May and scheduled attendance
promises to make this one of our best
years. The storage facility will deter-
mine new exhibits in the Museum.
Plans are being made to re-arrange
the commercial area and a new ama-
teur station setup has been finished to
house W3SW's Collins station. Anoth-
er new television set has been added:
horizontal mechanical drum type made
by Shortwave & Television Corp. of
Boston (Hollis Baird).

NIPPER EXHIBIT OPENS
A display of Nipperbilla is now on
display at IEEE headquarters. Called
"His Master's Voice: Nipper Is Back";
the exhibit features the famous fox
terrier who became the trademark for
RCA.

The exhibit includes early 78 rpm
Victor records with Nipper labels,
Lenox china salt and pepper shakers
in his image, Nipper statues used by
JVC in the late 1960's to promote its
consumer products and a transparency
of the famous stained glass windows
of the RCA Camden, N.J. building tow-
er.

--- Bill Smith, N9TT

A.W.A. HISTORICAL MUSEUM
East Bloomfield, N.Y.
Bruce Kelley, Curator

Museum Hours:
Sunday — 2 to 5 P.M.
Wednesday — 2 to 9 P.M.
May through October
Open to groups by appointment
Tele. (716) 657-7489
Free Admission
Museum Telephone:
(716) 657-6260

IN THE NEWS
Budget Cuts: IMS in Jeopardy,
NEA, NEH Slashed
At this writing (May), it appears many
public museums may suffer as the re-
sult of reduced federal spending. Cuts
termed "devastating" have been made
to budgets of agencies providing sup-
port to public museums. The AWA
Electronic-Communication Museum,
however, is fortunate. The Board has
made the Museum self-sufficient and
never applied for loans or grants.
True, we're a small operation, and
as such, we've always stayed within
our budget and have ample funds to
maintain facilities in the predictable
future.... thanks to the strong sup-
port of YOU, the co-operative members.

LATE REPORT
It is with regret we announce the
passing of noted vacuum tube historian
Gerald F. J. Tyne.
Details of his life and work will
appear in the September OTB.

PICTURE IDENTIFICATION: (l. to r.)
Maria de Forest, Lee de Forest and
Alan Dumont examining one of the first
de Forest triode tubes.