THE SAGA OF THE VACUUM TUBE

By GERALD F. J. TYNE

Research Engineer, N. Y.

Part 15. The early growth of the amateur fraternity, with the development and manufacture for public use of the Audion and crystal detector.

Fig. 167

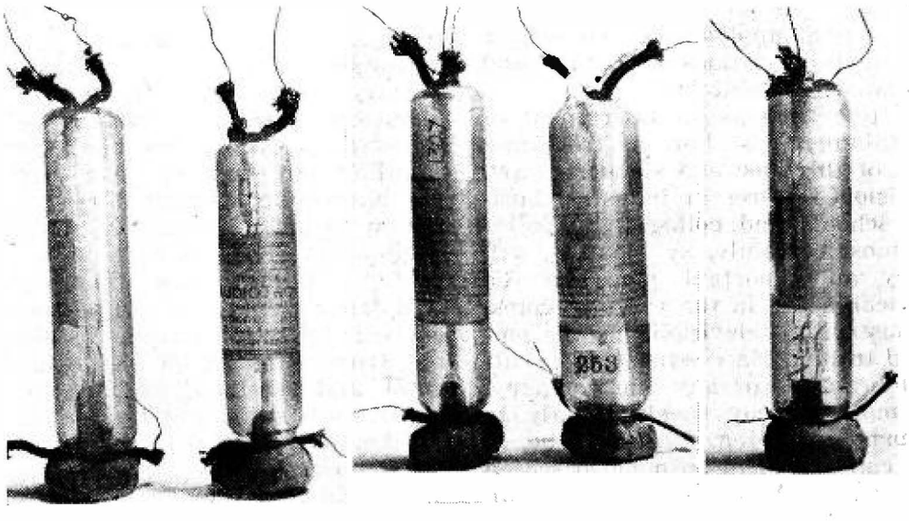


Fig. 168

THE amateur fraternity was small during the first decade of the twentieth century. Equipment was crude; progress was slow and beset with difficulties. Little factory-made equipment was available and reliable construction information was difficult to obtain. This situation was partly alleviated by the International Electrical Congress held at St. Louis in 1904, which became a clearing house for information along wireless lines as well as other branches of the electrical art. At this Congress papers describing recent advances in theory and practice of wireless were presented by John Stone Stone, Lee de Forest, J. A. Fleming, and others.

The de Forest Audion and the crystal detector both appeared in 1906-7. The crystal detector was adopted instantly by the amateur. It was simple, cheap, and sensitive, and in time came into almost universal use. It made the amateur receiver really usable. The Audion was expensive and short-lived, and required expensive auxiliary equipment. A dry-cell anode battery and a filament storage battery were needed. Small dry cells were short-lived and the problem of charging and otherwise maintaining a storage battery was not to be taken lightly. The Audions varied greatly in their characteristics, not only initially but with use. Hence they were not widely used.

In the early part of the second decade a number of factors tended to promote the use of the Audion. The ranks of the amateur fraternity were swelled by many hundreds of 'teen age boys (and older ones as well) whose interest in this fascinating avocation had been aroused by newspaper tales about rescues at sea. Stories of the rescue of survivors of the ill-fated *S.S. Republic* and *S.S. Titanic,* and the part played by wireless in the rescue work, all aroused widespread interest in this newest branch of the communications art.

Once the desire was aroused, the ingenuity of Young America was called upon to provide the necessary equipment for the home station. The family rolling-pin disappeared from the kitchen only to reappear later, disguised by the application of a layer of wire, as a tuning coil. Bits of wire, scraps of metal, odd chunks of wood, all provided grist for the mill which turned out the wireless set of the eager constructor. Practically everything except the headset could be made in the cellar workshop, and it usually was. It was the era of "haywire" and home-brewed apparatus, even for elaborate stations.

By 1915 the Audion was much better known, particularly on the West Coast. The opening of the transcontinental telephone line and the publicity attendant thereon, the Panama-Pacific Exposition with its displays of wireless equipment—both tended to promote knowledge of this device. It became the ambition of almost every embryonic Marconi to possess an Audion.

The problems of obtaining and main-

Fig. 169

Fig. 170

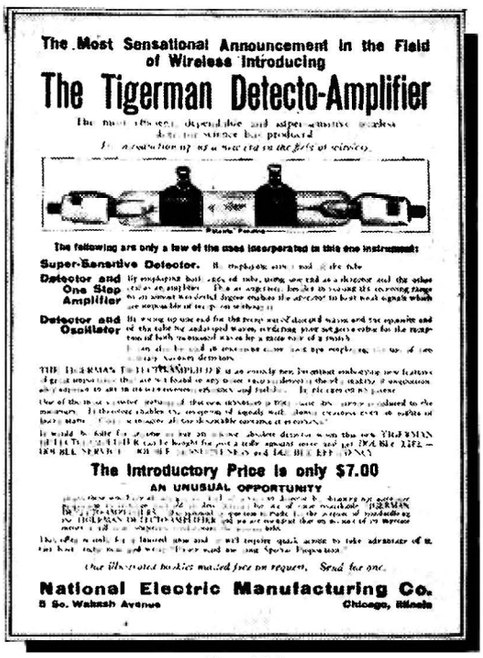
Fig. 171

taining the requisite storage battery in the meantime had been lightened by the development and use of electric starting and lighting systems for automobiles. Better and cheaper batteries and charging equipment were available. In most cases, consequently, the chief problem confronting the amateur was that of obtaining the Audion itself, and here the ambition still outran the exchequer. The policy of the only legitimate source of supply, the de Forest Company, was to sell not "Audions" but "Audion Detectors" at a minimum of $18 each. The difference in name was not great, but the difference in effect on the amateur's pocketbook was fatal. True, Audions could be purchased for replacement purposes in Audion Detectors, but the initial outlay to obtain the latter would have been a crushing blow to solvency. A few fortunate amateurs in the vicinity of New York City were able to obtain Audions on an over-the-counter basis in New York, but such sales were in the minority.

This policy on the part of the de Forest Company had the effect that does sumptuary legislation. Other sources provided a supply of the article in demand, and the making of vacuum-tube detectors by "independent" manufacturers came into being. Some of these made an attempt to get around the de Forest "grid patent" by using a control electrode on the outside of the tube; others frankly infringed.

As readily may be appreciated, authoritative information on these early independent tubes is difficult to obtain. Manufacture and sale in many cases was carried on sub rosa, and practically the only method of tracing their evolution is through the advertisements which offered them for sale. As will be seen, these advertisements almost always made extravagant claims, probably because the manufacturer felt sure that there would be

Fig. 172



The Most Sensational Announcement in the Field of Wireless Introducing

The Tigerman Detecto-Amplifier

The following are only a few of the uses incorporated in this one instrument:

Super-Sensitive Detector.

Detector and One Step Amplifier

Detector and Oscillator

The Introductory Price is only $7.00

AN UNUSUAL OPPORTUNITY

Our illustrated booklet mailed free on request. Send for one.

National Electric Manufacturing Co.

8 So. Wabash Avenue Chicago, Illinois

Fig. 173

ELECTRON AUDIO

DETECTOR
AMPLIFIER
OSCILLATOR

THE ELECTRON AUDIO DETECTOR IS THE MOST SENSITIVE DEVICE KNOWN

GUARANTEE

SPECIAL TRIAL OFFER

PRICES

Supersensitive detectors and amplifiers,	$6.50
Supersensitive oscillators,	6.50
Combination of above	7.50
Single filament,	1.00 less

THE ELECTRON MANUFACTURING COMPANY, Berkeley, Cal.

Fig. 174

Fig. 175

little comeback on the part of the purchaser. Hence, little reliable information on the characteristics of these tubes is available.

The first of these independent tubes to appear was also the last to disappear, and the most widely sold and used of all the early independent tubes. It was known as the "Audio Tron." This tube was the brain-child of Elmer T. Cunningham of Los Angeles. It was made at Oakland, California, and was first sold in August of 1915. It was first advertised for sale in November, 1915,[203] the advertisement being that reproduced as Fig. 167.

The original Audio Tron was a double-ended, cylindrical, unbased tube about ¾ inch in diameter and 4 to 5 inches long. It comprised a double tungsten filament, a coarse spiral grid of copper wire, and a cylindrical aluminum anode. The anode fitted rather closely the inside diameter of the glass, as will be seen from Fig. 168, which shows a group of these tubes. The Audio Tron sprang into instant popularity, particularly among those who could not afford the luxury of "all de Forest" equipment.

Steps were soon taken by de Forest to prosecute the "Audio Tron Sales Company" for infringement. In February, 1916 the de Forest Company filed suit against the Audio Tron Sales Company and others. The Audio Tron Sales Company filed bond on August 14, 1916 and continued the manufacture and sales of its product.[204] The suit was later settled out of court.

The de Forest Company, to meet this competition, brought out, in April, 1916, the "Type T" Audion,[205] similar in appearance to the Audio Tron but with a single filament, which could be purchased without the necessity of buying a complete expensive detector unit. The "Type T" was announced for sale at $5.50 and Cunningham promptly cut the price of the Audio Tron to $5.25 to meet this challenge.[206] See Fig. 169.

The advertisement of the Audio Tron in at least one publication was discontinued after the filing of the infringement suit,[207] but for a short time another tube, of the two element type, called the "Amplitron" was advertised in its place. See Fig. 170. This continued for only two or three months and subsequent advertisements of the Audio Tron Sales Company confined themselves to the suggestion that the readers write for information on their apparatus.

The war proclamation which ordered the dismantling and sealing of amateur apparatus was issued by President Wilson on April 6, 1917, hence the market for this apparatus disappeared.

After the war, however, we find advertisements for the Audio Tron reappearing, first in June, 1919, in one magazine,[208] and later in others.[209] These advertisements described the Audio Tron as having a thoriated tungsten filament, with a life of 2000 hours, and further stated that it was licensed under the de Forest patents for use as an amplifier in radio communication. It was described as "The Original Vacuum-Tube Amplifier" and priced at $6. Almost simultaneously there appeared for sale the "Marconi VT," made by Moorehead, and warning that the Audio Tron was not licensed under the Fleming patents.[210] These advertisements continued to appear for some time.

Meantime the Radio Corporation of America instituted suit against Cunningham in the U. S. District Court of the Northern District of California for infringement of the Fleming patents. Apparently Cunningham was capable of presenting a rather strong defense in this suit because it was settled by agreement out of court. This agreement,[211] dated June 15, 1920, gave to Cunningham a personal, nontransferable license under the Fleming and de Forest patents for a period of ninety days, to manufacture and sell tubes of not more than 5-watts output, and not more than 5000 tubes in all. These tubes were to be marked "For amateur and experimental use only" and to be made by Cunningham doing business under the name and style of "Audiotron Manufacturing Company." The tube at the extreme right in Fig. 168 is one so marked, the markings being etched on the glass.

(*Continued on page* 92)

the more important "image" and other forms of interferences increase when such low values of i.f. are employed, they are no longer widely employed in broadcast receivers and, so harmonic-of-i.f. interference is now possible in some localities.

Realignment of the i.f. stages of any existing receiver thus affected, is the usual field cure for trouble of this sort. It should be carefully noted and checked as to whether the signal operating at the second harmonic of the i.f. is being picked up on the under-chassis wiring of the receiver, in addition to the antenna. In this case the whistle produced will be aggravated. In extreme cases, it is possible to eliminate the whistle by providing a wave trap tuned to the second harmonic of the signal and placed in the circuit feeding the mixer stage.

(To be Continued)

Saga of the Vacuum Tube

(Continued from page 56)

A second agreement,[212] under the same date, between the Radio Corporation of America and Cunningham provided that when the ninety day license had expired the Audiotron Company would discontinue the manufacture and sale of vacuum tubes, and would sell Radio Corporation tubes, until the expiration of the de Forest patent No. 879,532 on February 18, 1925. These tubes were to be marked as Cunningham desired, and no Radio Corporation markings were to appear. The agreement gave to Cunningham not less than 25,000 tubes per month and not more than 280,000 tubes total during the period which the agreement covered. These tubes were to be sold to Cunningham at a discount of 20% below the lowest net price quoted to anyone else. Deliveries were to begin September 15, 1920, or as soon thereafter as possible.

As a result of the first agreement noted above, subsequent advertisements[213] of the Audiotron Manufacturing Company, successor to the Audio Tron Sales Company, stated that the Audiotron was now free from all restrictions. The first agreement was modified, on September 13, 1920, and the license period extended to October 15, 1920. The advertisements continued up to November, 1920.

With the December, 1920 advertisement,[214] however, the effects of the second agreement begin to appear. This advertisement announced the "Audiotron Detector Type C-300" with four-point base at $5 and the "Type C-301 High Vacuum Navy Type Amplifier" at $6.50. The tubes were "Guaranteed by E. T. Cunningham, trading as the Audiotron Manufacturing Company."

The next advertisement, in January, 1921,[215] refers to "Cunningham Audiotron Tubes" in the heading, but "Cunningham Tubes" in the body of the advertisement.

The following month reference is made[216] to the "Cunningham Detector Tube Type C-300" and the word Audiotron has completely disappeared except for the retention of the firm name of "Audiotron Manufacturing Company."

The next advertisement[217] offers for sale the "Cunningham Power Tubes C-302, C-303, and C-304" and admits that these tubes are the product of General Electric Company research.

From then on the prominence given to the name of the company grows less, until in December, 1922 the word "Audiotron" completely disappears, and the concern is renamed "E. T. Cunningham, Inc."[218]

The success of the Audio Tron appears to have served as encouragement to other manufacturers. Shortly after its rise there appeared another tube, enough like the Audio Tron to have been cast in the same mold. This was the Roome "Oscilaudion," first advertised[219] in January, 1916 (see Fig. 171) by Harry V. Roome of Los Angeles. Roome had been advertising wireless apparatus for some time, but this was the first mention of vacuum tubes. Two months later, in March, 1916, the advertisement reappeared,[220] this time for the "Oscilaudion Bulb and Cabinet." No further advertisements appeared until July, 1916, when the "Thermo Tron" was advertised by "The Thermo Tron Company" from the same address as Harry V. Roome. This advertisement,[221] reproduced in Fig. 172, is very ambiguously worded, making no mention of any restrictions as to use. Since it appeared in a wireless magazine, however, the reader might be pardoned for assuming that it was intended for wireless use. However, when the purchaser received the device, orderd by mail from the advertisement, he received with it a descriptive leaflet which contained no ambiguous statements whatever, but described it as an "experimental hot-cathode apparatus designed for the study of the Edison effect, thermionic currents, pure electron discharge, passage of electricity through electrons (sic), and other scientific phenomena." It also carried the following warning:

"It is distinctly understood by the purchaser that the Thermo Tron is sold for the purpose of scientific study to be used with the circuits shown in this bulletin. If the Thermo Tron is used for commercial work in wireless telegraphy as a detector, amplifier, or oscillator, or if the Thermo Tron is used for commercial work in an Armstrong circuit, or if the Thermo Tron is used in any way as an infringement of any patent, the Thermo Tron Company assumes no liability whatever."

It might be suspected that the change from the "Oscilaudion," which was frankly sold as a wireless detector, to the "Thermo Tron," a pure scientific device, was perhaps motivated by the legal action initiated by de Forest against the Audio Tron at about the time this advertisement was being prepared. The success of the Audio Tron Sales Company in staving

VOICE-COIL IMPEDANCE MATCHING TABLE

AS many radio servicemen have some output transformers around their shops and do not know the type of tubes and voice coils with which they can be used successfully, Mr. Ralph W. Wilson of Falmouth, Kentucky, has sent us the following chart, which he has found very useful.

Mr. Wilson said that this chart is simple to use, all that is required being a low-range a.c. voltmeter and a 115-volt a.c. source. Connect the primary or plate winding to the 115-volt a.c. source and the voltmeter to the secondary or voice-coil winding. The reading of the meter may be found on the chart under several voice-coil impedances or very near them. For instance, a reading of 2.9 volts could be used from 3000 ohms to 2 ohms or from 6000 ohms to 4 ohms; also from 10,000 ohms to 6 ohms or 12,000 ohms to 8 ohms. This, of course, gives the proper turns ratio. Of course the transformer should be properly designed and large enough so that it will not reach magnetic saturation.

The chart is figured for 2, 4, 6, and 8-ohm voice coils. For other impedance combinations the following equation can be substituted:

$$E = \frac{\sqrt{Zs}}{\sqrt{Zp}} \cdot E_L$$

in which E = Meter reading on secondary; Zs = Impedance of voice-coil winding; Zp = Impedance of plate winding; and E_L = line voltage applied to primary.

Voice-Coil Impedances

Primary Impedance	2 ohm	4 ohm	6 ohm	8 ohm
25,000	1.02 v.	1.45 v.	1.77 v.	2.04 v.
15,000	1.33 v.	1.87 v.	2.30 v.	2.66 v.
12,000	1.48 v.	2.09 v.	2.56 v.	2.96 v.
10,000	1.63 v.	2.30 v.	2.82 v.	3.26 v.
8,000	1.82 v.	2.57 v.	3.15 v.	3.64 v.
7,000	1.94 v.	2.74 v.	3.36 v.	3.88 v.
6,000	2.10 v.	2.97 v.	3.64 v.	4.20 v.
5,000	2.30 v.	3.25 v.	3.99 v.	4.60 v.
4,000	2.57 v.	3.63 v.	4.45 v.	5.14 v.
3,000	2.97 v.	4.20 v.	5.14 v.	5.93 v.
2,000	3.64 v.	5.15 v.	6.30 v.	7.28 v.
1,000	5.14 v.	7.25 v.	8.89 v.	10.28 v.
500	7.27 v.	10.28 v.	12.60 v.	14.54 v.

off an injunction and continuing business as usual is perhaps reflected by the next advertisement,[222] appearing the next month, in which the name of Roome again appears, and the "Super-Sensitive Oscilaudion" is boldly advertised for use as detector, amplifier, or oscillator.

With the Oscilaudion the purchaser received a leaflet, of the same size and typography as that supplied with the Thermo Tron, and using the same cut for an illustration, but setting forth the virtues of the Oscilaudion as a wireless device.

This was the last time this tube was advertised, as far as the author has been able to determine, and it is probable that the source of supply disappeared. The author understands that Harry V. Roome was at that time a high school boy in Los Angeles, and that he obtained the tubes he sold from a San Francisco manufacturer, who would supply him with only a limited number, and who eventually refused to sell to him at all.

There were a few other prewar independent tubes on which little information is available. One of these was the "Tigerman Detecto-Amplifier," advertised[223] in 1917 by the National Electrical Manufacturing Company of Chicago. Fig. 173 is a reproduction of the advertisement which announced this tube. It was a double-ended tube with two sets of filament-anode electrodes, one at each end. The control electrodes were applied on the outside of the glass and were simple metallic bands clamped around the tube, which was about 5 inches long and had a candelabra base on each end. Apparently it was not sold to any great extent, since an advertisement in April, 1917[224] offered them for sale "while they last" at $5 each.

The "Electron Audio," another tube similar in construction to the Audio Tron, was made by the Electron Manufacturing Company, and was first advertised in July, 1916.[225] The initial advertisement claimed that it was "formerly the Audio Tron," and the next advertisement,[226] reproduced in Fig. 174, showed a tube of the same construction as the Audio Tron. The "Electron Audio," however, could be obtained with either a single or a double filament. It quickly lapsed into obscurity, and probably had a limited sale, although it was regularly supplied by at least one manufacturer as a part of a radio receiver. In this receiver the tube was inserted into an "autotransformer," which was claimed to be of "remarkable importance to our undamped wave apparatus since its magnetic field oscillations are absolutely in synchronism and consequently stimulate the periodical electron discharge from the filament and the ionization of the gas within the bulb by the heat of the filament"![227]

Two others of the same type were advertised by the Radio Apparatus Company of Pottstown, Pennsylvania. One was the "Type 36 Electron Detector"[228] and the other was the "Liberty Valve."[229] The Liberty Valve is shown in Fig. 175. Since this company also advertised the Audio Tron at the same time,[230] it may well be that the Liberty Valve was the Audio Tron with a different label.

Still another tube called the "Oscillotron" was advertised[231] briefly just after amateur activity was resumed following the end of World War I. This was advertised by the G & M Specialty Company of Cleveland, Ohio, but no information is available on it.

There were also two other tubes on which the author has been unable to obtain information. One of these was the "Bartley" tube, which was sold about 1919,[232] and the other was the "Corcoran" tube which is alleged to have been made at Lynn, Massachusetts, about 1914 or 1915.

The only other early independent tubes of which the author has knowledge were those marketed by O. B. Moorhead, which will be covered in a subsequent article.

CAPTIONS FOR ILLUSTRATIONS

Fig. 167. First announcement of the Audio Tron. Reproduced from Popular Science Monthly and The World's Advance.

Fig. 168. Audiotrons. The second from the left has label printed in black ink. Third and fourth from left have labels printed in red ink. Tube at right has markings etched on glass.

Fig. 169. Advertisement giving price

reduction on Audio Tron to meet de Forest competition. Reproduced from Electrical Experimenter.

Fig. 170. Advertisement for Amplitron. Reproduced from Electrical Experimenter.

Fig. 171. Announcement of Roome "Oscilaudion." Reproduced from Wireless Age.

Fig. 172. Advertisement for Thermo Tron. Reproduced from Electrical Experimenter.

Fig. 173. Announcement of Tigermann Detecto-Amplifier. Reproduced from Electrical Experimenter.

Fig. 174. Announcement of "Electron Audio." Reproduced from Wireless Age.

Fig. 175. Liberty Valve. Photograph courtesy Bell Telephone Laboratories.

References

203. *See advertisement in Popular Science Monthly and the World's Advance, Vol. 87, No. 5, November,* 1915, *p.* 120.

204. *"The Vacuum Detector Patent Situation," Pacific Radio News, Vol.* 1, *No.* 5, *May,* 1917, *pp.* 203-206.

205. *See advertisement in Electrical Experimenter, Vol.* 3, *No.* 12, *April,* 1916, *p.* 726.

206. *See advertisement in Wireless Age, Vol.* 3, *No.* 10, *July,* 1916, *page I; and Electrical Experimenter, Vol.* 4, *No.* 4, *August,* 1916, *p.* 282.

207. *Gernsback, Hugo—"De Forest vs. Electrical Experimenter," Electrical Experimenter, Vol.* 4, *No.* 11, *March,* 1917, *pp.* 808-809.

208. *See advertisement in QST, Vol.* 2, *No.* 11, *June,* 1919, *p.* 29.

209. *See advertisement in Radio Amateur News, Vol.* 1, *No.* 8, *February,* 1920, *p.* 441; *also QST, Vol.* 3, *No.* 9, *April,* 1920, *p.* 81.

210. *See advertisement in Radio Amateur News, Vol.* 1, *No.* 8, *February,* 1920, *p.* 396; *also Pacific Radio News, Vol.* 1, *No.* 7, *February,* 1920, *inside back cover; also QST, Vol.* 3, *No.* 8, *March,* 1920, *p.* 78.

211. *See Exhibit Z-1, Report of the Federal Trade Commission on the Radio Industry—Government Printing Office*—1924.

212. *See Exhibit Z-2, Report of the Federal Trade Commission on the Radio Industry—Government Printing Office*—1924.

213. See RADIO NEWS, *Vol.* 2, *No.* 1, *July,* 1920, *inside front cover; also QST, Vol.* 4, *No.* 2, *September,* 1920, *p.* 61.

214. *See* RADIO NEWS, *Vol.* 2, *No.* 6, *December,* 1920, inside front cover; also QST, *Vol.* 4, *No.* 5, *December,* 1920, *p.* 101.

215. *See* RADIO NEWS, *Vol.* 2, *No.* 7, *January,* 1921, *inside front cover; also QST, Vol.* 4, *No.* 6, *January,* 1921, *p.* 93.

216. *See* RADIO NEWS, *Vol.* 2, *No.* 8, *February,* 1921, *inside front cover.*

217. *See* RADIO NEWS, *Vol.* 2, *No.* 9, *March,* 1921, *inside front cover.*

218. *See* RADIO NEWS, *Vol.* 4, *No.* 6, *December,* 1922, *inside front cover.*

219. *See Wireless Age, Vol.* 3, *No.* 4, *January,* 1916, *page I.*

220. *See Wireless Age, Vol.* 3, *No.* 6, *March,* 1916, *page I.*

221. *See Wireless Age, Vol.* 3, *No.* 10, *July,* 1916, *page III; also QST, Vol.* 1, *No.* 8, *July,* 1916, *p.* 188; *also Electrical Experimenter, Vol.* 4, *No.* 4, *July,* 1916, *p.* 193.

222. *See QST, Vol.* 1, *No.* 9, *August,* 1916, *advertising section; also Electrical Experimenter, Vol.* 4, *No.* 4, *August,* 1916, *p.* 283.

223. *See Electrical Experimenter, Vol.* 4, *No.* 8, *December.* 1916, *p.* 602.

224. *See Pacific Radio News, Vol.* 1, *No.* 4, *April,* 1917, *p.* 182.

225. *See Wireless Age, Vol.* 3, *No.* 9, *June,* 1916, *page* III.

226. *See Wireless Age, Vol.* 3, *No.* 10, *July,* 1916, *page* II.

227. *"Mignon Undamped Wave System," Pacific Radio News, Vol.* 1, *No.* 2, *February,* 1917, *p.* 79.

228. *See QST, Vol.* 2, *No.* 5, *April,* 1917, p. 83.

229. *See QST, Vol.* 3, *No.* 6, *January,* 1920, *p.* 48.

230. *See Wireless Age, Vol.* 6, *No.* 10, *July,* 1919, *p.* 45.

231. *See QST, Vol.* 3, *No.* 5, *December,* 1919, *p.* 64.

232. *"Fleming's Valve and Up," Radio Craft, Vol.* 9, *No.* 9, *March,* 1938, *p.* 582.

(Continued in March Issue)

Within the INDUSTRY

ADMIRAL CORPORATION of Chicago has announced several organizational appointments through its president, Ross D. Siragusa.

Wallace C. Johnson has been named Midwest Regional Manager for both radios and appliances. His headquarters will be at 444 Lake Shore Drive, Chicago.

United Distributors, Inc., will serve as distributors of Admiral radios, refrigerators, electric ranges and home freezers in the Boston area and part of Vermont, while Appliance Merchandisers Company of Peoria will handle the company products for central Illinois.

The Bimel Company of Cincinnati will handle the appliances in the Cincinnati area and Griffith Distributing Corporation will take care of the company's business in Indianapolis.

* * *

Z. V. THOMPSON, who has been serving as a Major in the U. S. Army Air Corps, is returning to civilian status as a sales representative for Tung-Sol's Indiana territory. Mr. Thompson, who held a reserve commission as Second Lieutenant upon his graduation from Clemson College in 1928, returned to active duty with the rank of Captain in August, 1941. His promotion to Major was effected February, 1942.

* * *

RAYTHEON MFG. COMPANY has launched the coast-to-coast sponsorship of the "Meet Your Navy" program which is heard on Saturday evenings, features Navy personnel broadcasting from the Great Lakes Naval Training Station.

Rear Admiral Arthur S. Carpender, Commandant of the Ninth Naval District, and Mr. L. K. Marshall, president of Raytheon, were special guests at the first performance under Raytheon's sponsorship. Lt. Clint Stanley is the producer of the Navy show.

* * *

FARNSWORTH TELEVISION AND RADIO CORPORATION has outlined postwar plans for its dealers through General Sales Manager, Mr. E. H. McCarthy. The distribution structure will be a strong distributor-dealer operation, with the distributors to be selected after exhaustive survey of potential sales outlets in each area.

Fifty distribution agencies already have been appointed under the new plan and new appointments will be announced from time to time.

* * *

SAM PONCHER of the Newark Electric Company of Chicago was elected president of the Chicago chapter of the National Electronic Distributors Association at a meeting of that organization held in Chicago. Various trade problems were discussed and an election of officers took place, resulting in the election of Mr. Poncher, and Ralph E. Walker of Walker-Jimieson, Inc., to the post of Secretary-Treasurer.

* * *

THE HALLICRAFTERS COMPANY, makers of the SCR-299 mobile radio communications unit, dedicated a radio ham "shack" to the achievements of the nation's amateur radio operators. The "shack" is located at 643 N. Michigan Avenue, Chicago, and is stocked with a display of the company's products. There are an estimated 25,000 "hams" in the military services at the present time and the dedicatory program is centered about their work.

A service flag, commemorating the "ham's" military service was presented by Chet Horton, member of the Hamfesters Radio Club of the Chicago area, to the A.R.R.L. Carol K. Witte, acting communications manager of the A.R.R.L., accepted the service flag for the League. More than 50 members of the Hamfesters Club were present at the ceremony.

* * *

H. V. MYSING is the new manager of sales and engineering service for RCA's Auto Radio Department, according to the announcement made recently by Thomas F. Joyce, General Manager of RCA's Victor Radio, Phonograph and Television Department. Since the outbreak of the war Mr. Mysing has been serving with a group of RCA engineers working with the U. S. Army Signal Corps on an engineering development contract in connection with combat radio communications problems. His headquarters will be in Detroit.

* * *

STEWART-WARNER CORPORATION has appointed George Johnson to handle sales promotional work pertaining to civilian postwar radios. His duties will also include radio distributor relations.

Mr. Johnson comes to the company