

THE OLD TIMER'S BULLETIN

OFFICIAL JOURNAL, ANTIQUE WIRELESS ASSOCIATION
Published for the Old Time Wireless Operator, Historian and Collector

Vol. 3

FALL, 1962

No. 3



A.W.A. members admiring
1896 MARCONI REPLICAS
at A.W.A. "Open House"

(left)-Lewis McCoy, W1ICP, well known QST Technical Writer, holds an exact replica of the coherer/de-coherer receiver used by Marconi in his tests of 1896. (right)- Dr. "Cy" Staud, K2EQ, Director of Research, E.K. Co., holds the spark transmitter. Both models were constructed by A.W.A. Marconi historian W2QY who says the difficult part was making and getting the polarized relay to function properly. Original plans for these models were obtained from Chelmsford, England. The two units have been demonstrated at numerous A.R.S.L. Conventions and I.R.S. meets.

QCWA YEARBOOK - the "gang" at QCWA headquarters deserve a big hand for the fine Yearbook recently released. 63 pages of information including a complete membership roster, Constitution and By-laws. If you've been a licensed amateur for 25 years or more, drop a card to Ralph Barber, W22M/12M, 244 Forest Ave., Locust Valley, N.Y. for more info.

REMINDERS scheduled: W6ELW from the U.S. Naval Air Station and K2POI from General Electric.....congrats !

LATEST GEAR ON LOAN TO A.W.A. BARN MUSEUM FOR EXHIBITING AND PHOTOGRAPHING

Rare camel-back telegraph key	- W2KLF
Early magazines	- W2PTW
Historical keys and books	- K2GF
F.C.C. Historical Manual	- W2GS
Alexanderson Alter. Manual	- K2POI
Early transmitters and receivers and other misc. gear	-ex-3DW
1910 spark transmitter	- K2RPW
Historical Electrical gear	-W3YA
Various Wireless Stock cert.	-W6GH
Rotary gap, tubes, mike	- W2DFY
Bunnell Wireless key	- W2WNY
FB-7, tubes and misc. gear	- W2HW
X-Ray tube	Gene Kerns
Historical reference book	- W5JT
Framed picture	- VE3GG

A.W.A. ANNUAL FALL MEETING

Last weekend of October.

Exact place and time to be announced. Members within 100 mile radius will receive notice - others, if interested, may write for info. Everyone welcome. Special historical program will follow business part of meeting.

- - - Geo. Batterson, W2GB
President, A.W.A.

BUSH OPERATOR - early operators endured many hardships and can tell tales of adventure about their voyages at sea; however, few can claim the same on land. Our amateur historian, Mike Cavenev, VE3GG, is one of the few that can. Mike was a bush operator in the wilds of Canada in the spark and early CW days. Dog sleds, 50 degrees below zero, isolated mining camps, Indians and crude wireless gear make up the background of this veteran operator.

VE3GG can be heard regularly on 80 meter CW and we plan to print one of his adventures in the next issue....



WIRELESS TELEGRAPH

The "Telefun" - Complete apparatus, comprising 1 inch Spark Coil, Baffle, Key, Galvanic with Auto. Rheostat and Secondary, 2000 Volt Relay, 4 Cell Dry Battery, Send and Catch Wires, and Connections, with Instructions and Diagrams. Will work up to 1 mile. (Unpublished Instructions price - Approx. 50c. Unpublished Pamphlet).

ELECTRO IMPORTING CO., 21 Park Place, New York



WIRELESS TELEGRAPH

*Telefun No. 4, Complete apparatus, comprising one inch Spark coil, Baffle, Key, 1000 Volt Relay, Galvanic with auto. Rheostat, 1000 Volt Battery, Working Connections, Instructions, Diagrams, etc. Will work up to 1 mile. Price \$1.50. Approx. 50c. New Catalog of European and Amer. Elec. Apparatus.

ELECTRO IMPORTING CO., 21 Warren St., New York

WORLD'S FIRST RADIO ADVERTISEMENT

We believe the above reproductions are the first ever printed advertising a complete amateur station. The top one was published in January, 1906 and the bottom in June, 1906 (Scientific American). This would indicate that the January ad was placed with the publisher in 1905! Note the difference between Models No. 1 and 2.

Mr. Gernsback presented one of these sets to the Dearborn Museum a few years ago. (Thx WYBK)

RECTOBULBS - our club has for sometime been trying to complete its collection of historical tubes used by the early amateur. Among those lacking was the "Rectobulb" - a high power half-wave rectifier of the late '20s and early '30s. Most fellows threw the burnt ones out and replaced them with 866's - not W2ED however! Earl found a couple and now the museum has a complete series.

CLARK WIRELESS - article on the Great Lakes Wireless drew many letters - the most interesting from Vance Phillips, W6GH, which included an original share of the Clark Wireless Co. This historical stock certificate has already been framed and is now on the wall of the Club's Museum for all to see.

HIGHEST POSSIBLE RADIO FREQUENCY - microwave communication is constantly going upward; however, we're told that the ultimate practical frequency is 3×10^{14} cps or 300 teracycles. Ruby maser-type oscillators have operated as high as 433 teracycles! We wonder what the radio historian 50 years hence will have to offer?

NEW YORK CITY

Saturday, October 13th

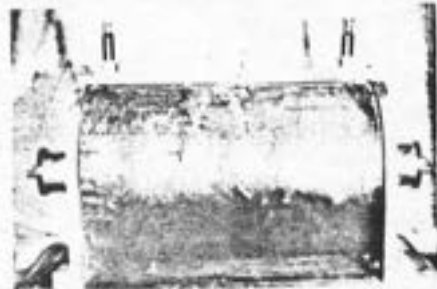
is the location and date for the A.R.R.L. Hudson Division Convention. It is also a MUST for the OLD TIMER and HISTORIAN since it will be the occasion when the IRE, ARRL, OOTC, QCWA, RCA and many other organizations will commemorate the "50th Year of Licensed Amateur Radio"..... more info can be found in regular radio magazines but here are a few of the highlights:

- - ARRL President Herbert Hoover, Jr., W6GH will officiate.
- - Licensed amateurs of 1912 will receive special citations.
- - Officers of most of organizations will be present.
- - The A.W.A. will have an authentic 1912 Spark Transmitter and Receiver in operation (with permission of F.C.C.) plus an exhibit of other early gear - see you Oct. 13!

TENNA 325 - W6OEP is restoring one of these early receivers and would like the circuit and other general info... Joe says the rx was partially stripped of the original components.

BUNNELL 1 SLIDE TUNER and 25 copies of Modern Electrics are new acquisitions at KEMDA. Although B1 has been under the weather of late he still manages to find the gud stuff.

REINARTZ TUNER - would like to correspond with anyone who has recently built a Reinartz tuner of 1921. Interested in original circuit and modifications. Bob Shaw, Box 37, Temple, New Hamp.



MYSTERY TRANSFORMER

This "open-core" transformer is 26" long and 18" high. To date, W6GH has been unable to obtain any information about it. It is a real challenge to the "gang"....who will be the first to unravel its mystery?



MYSTERY TRANSMITTER

In last issue didn't turn out to be such a mystery after all. W2IA, W6GH, W7RD, W6JUV and others identified it. The easiest way was to look in Elmer Bucher's "Practical Wireless Telegraphy" where you would find it was a Type E-2, $\frac{1}{2}$ KW. Marconi, 120 cycle panel set for operation on 300 and 600 meters.

W7RD sends along additional info saying American Marconi made around 100 of these sets in 1914 and that they were used mostly on tugs and small ships as well as some canneries in Alaska and sometimes as emergency extras on large vessels. It was the first American Marconi "Panel" type transmitter and was designed by John B. Elenschneider in the winter of 1913-1914. Bob goes on to say that most of the steam schooners along the Pacific coast used these transmitters on a Marconi rental basis from 1915 until after WWI.

How does W7RD know all this? Seems that he installed, repaired and operated them for years! In fact, he still has one at his home!

To wind this all up, W6GH sends us the above photo showing the E-2 being used as a "prop" in an early silent movie starring Madge Kennedy. Note the 106 receiver in the background.....
(Thx W6GH as W7RD)

MARCONI HOTEL - the famous hotel built by Marconi in 1914 near Tomales Bay (Calif.) for his Pacific coast wireless ventures has again found occupancy when it will open soon as a resort hotel.

This building as well as the nearby station was taken over by RCA after WWI but later abandoned for a better location. All remnants of the station have disappeared except the hotel. (News clipping from WQYPM)

W9KY QSL MANAGER - is amateur historian and collector Ray Birren, W9MEG.....

HISTORICAL TRANSMITTER

What may be the oldest operating transmitter in the world will be on the air sometime this winter. It is being assembled by A.W.A. members from parts in the club's museum.

All components will be over 40 yrs. old. A "MOPA", it will use a UV-202 Hartley oscillator driving a single UV-203. Although primarily for CW operation, it will occasionally be heard on phone at which time a UV-203 will be used as a Heising modulator. Power will come from an ESO MG set plus CMC.

The MOPA meets F.C.C. regs, but a modern antenna coupling system will be used to minimize harmonic radiation. The receiver will be a Det. as 1 step aud. using UV-201s. To keep the station authentic, it will be designed for 160 meter operation; however, if the UV-202 oscillates properly, the wavelength will be lowered to 80 in order to quo OTs who don't work 160. Time and freq. will be announced in the next "Bull".....

FOREIGN TUBE collectors who have valves marked "Cossor" might be interested in knowing that A.C. Cossor Ltd. is a subsidiary of the Raytheon Co.

EVOLUTION OF BROADCASTING (INF Bulletin No. 2-B, July, 1961) is an interesting bulletin released by the F.C.C. Consisting of 25 pages, it briefly covers the development of early wireless telephony starting with Marconi and Fessenden thru to the early broadcasts of KDKA. Most of the material concerns subsequent IC, FM and TV problems. Nice copy from W6SS.



1906 DE FOREST STOCK CERTIFICATE

One of the many historical stock certificates in W6GH's collection. Vance is now looking for United Wireless certificates. Can anyone help him? Will buy or swap.

ANTIQUE WIRELESS ASSOCIATION

A.R.S.L. Affiliate

"An amateur organization interested in the history of wireless...."

President: George Batterson WQGB
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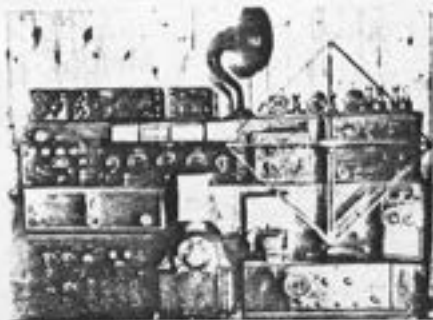
ANNUAL DUES: (which includes "OT Bulletin")

\$3 per year payable to:

A.W.A. Treasurer
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 69 Boulevard Parkway
 Rochester 12, N.Y.

"OLD TIMER'S BULLETIN"

Editor: Bruce Kelley, WZKE
 Main St., Holcomb, New York
Publishing Editor: Larry Triggs, WZTK



UTICA, NEW YORK has an ardent historian and collector in Yates Hoag, a former W8. Concentrating primarily on broadcast gear, he has several choice pieces in operation. Yates is employed in the BC rx section of G.E.

VICTOR "TRADE MARK" PHONOGRAPH fell in to "Curly" England's lap recently. Although he has dropped phono collecting, he couldn't let this one go by. Other new items for Curly include a Radiola IV and a GE AR-1300 crystal set. He also reports several new (old) books. There may be a shortage of old gear on the West Coast - but what there is left the W6 boys seem to find.

A.W.A. CERTIFICATE - will be issued to each regular member. A renewal sticker may be placed in the lower center. Credit for this fine certificate goes to our Publishing Editor and Board Member Larry Triggs, WZTK.

RARE BOOK recently acquired by WJOEP is "The Telephone, The Microphone and The Phonograph" - pub. in 1879 in London and written by Count Du Moncel. Joe says the book is in excellent condition and has abt 70 wood cut illustrations. A rack xtr using 4 UV-202's in parallel and a pair of Amrad "S" tubes as rectifiers was also picked up. WJOEP reports the xtr in perfect shape - just the way it was 40 years ago!

160 METER DX - had an occasion to read Stev Perry's "160 Meter DX Bulletin" recently. If I didn't know WISS personally I wouldn't believe half the stuff in it - the DX on this band seemed incredible! The most unusual was the working of EP2EK in Ahsadan, Iran! That's right - working into Iran (Persia) on 160 meters which is practically our old spark wavelength! Gess we had a gud band in the ole days as didn't kno it...takes an OT 40 yrs later to prove it!

FIRST WIRELESS IN U.S.A. was located in the fabled browstone lighthouse at Holmdel, New Jersey. It was here that Marconi setup his equipment to report the International Yatch Races of 1899.

The structure is located 200 feet above the sea level and once guided ships past Sandy Hook in the New York harbor as early as 1746. It is now a tourist attraction and is to be deeded to the state for that purpose. (Thx - WZZI)

QUOTE FROM LETTER: "The Dayton Club and Hamvention Committee voted last night to contribute \$500.00 to the A.R.R.L. Building Fund. We urge other clubs as well as individuals to make contributions for without the League there would be no Amateur Radio today...."
- - - Dan McCoy, W8DG, 6/30/62

(Also noted that the "Penn-York" Hamfest Committee voted a sum for the building fund.....nuf sed - W2ICE)

ELMO N. PICKERILL - every radio historian is familiar with this famous pioneer; however, not too many are aware that he is also one of the foremost pioneers in the country in aviation. He has served as president of the OX-5 Club (named after the famous OX-5 engine designed by Glenn Curtiss for WWI) and many other organizations. The original tie-in between aviation and wireless is unique: he made the first contact between plane and ground on Aug. 4, 1910. "Pick" flew his Wright model "B" airplane sitting out in front of the craft with the wireless gear mounted on the wings behind him! As a pioneer, he worked with DeForest and Marconi. At the time of his retirement he was Chief Technician of the RCA Central Radio Office in New York. Although a keen radio historian, he is also deeply interested in a historical Aviation Museum near his home at Mineola, L.I.

ZENITH STORY - the most interesting response from the article was a letter from W2MSG. Ray tells us the co-founder of Zenith, Karl Hassell, is still very active - in fact, he is Ray's neighbor! Karl started in 1915 with the call 8AKG in Sharpsville, Penna. Present call is W2PKX and spends most of his time on the 144 mc. band. As far as we know, Karl's partner, R.H.G. Matthews (9ZK) is still inactive.

OWEN D. YOUNG - died July 11 at his home in St. Augustine, Fla. at the age of 87. He is best known as the one who conceived and formed RCA in 1919 while vice-president of General Electric. (Note to A.W.A. Members: the club has in its magnetic tape library a one hour personal interview with Mr. Young in which he discusses the early trans-atlantic wireless circuits, the Alexanderson alternator, Marconi and other related subjects all familiar to the radio historian...tx W2EY)

FAMOUS SPARK WHEEL and other gear belonging to Ted Datsman, W2OM, is now in W2JDV's Historical Collection



BRITISH SCIENCE MUSEUM

Upper- Street view of Museum (London)

Lower- One of operating positions at amateur station GB2SM.

This amateur station was mentioned in our Summer Bulletin, so Earl Hart, W2IVK, made a note and visited the station on a recent trip to Europe. Earl says they usually operate on 14 mc. SSB (with a Collins KWS-1), however, the picture shows some of the British gear including an Eddystone receiver. W2IVK plans to give us a full report later on the huge science museum at Munich.

RE-IMPOSING RING ON NAA'S GAP - info can be found in W.H. Eccle's book titled "Wireless Tel. & Tel." of 1918. (Tx to W2IA)

WORLD'S TRADE FAIR - amateur section (sponsored by Chicago Area Radio Club) used A.W.A. material for their exhibit according to Jorian Kaplan, W2QKE.

by George Applegate, W2IA

In the process of assembling a collection of ancient wireless books over the past several decades, the writer has been agreeably surprised, in several instances, to find books with signatures of early wireless pioneers inscribed on the fly-leaves. In happening upon an old book in a second-hand bookstore, it has become a habit to examine it for signatures and notes, although the volume might be a duplicate of one already acquired.

About eight years ago, while touring "Book Row" in New York City, the writer located a First Edition of J. A. Fleming's "The Principles of Electric Wave Telegraphy," published in 1906. The signature "C. D. Babcock" was inscribed on the fly-leaf and in the margins of a number of pages. There were also numerous notes and comments scattered throughout the book, several of them in Babcock's personal cipher. It was a simple letter-symbol substitution which was not difficult to solve.

The reader might inquire at this point, "And just who was Mr. C. D. Babcock?" Well, we'll ask Dr. Lee de Forest to answer this. In his Autobiography, entitled "Father of Radio," published in 1950, he wrote: "At this stage (1902-1903) I hired a queer-looking hawk-nosed inventive individual endowed with an encyclopedic memory, by the name of Clifford D. Babcock. He had had wide experience with various inventors, Edison among others, and came to me fired with the determination to work with me" - -

"Bab", as de Forest called him, developed an electrolytic detector, supervised the Laboratory at "42 Broadway," and was an assistant to de Forest during the development of both the two-element and three-element tubes. During the period 1908-1910, he was issued fourteen patents. The famous name itself, "Audion", de Forest reports, "was Babcock's invention." Later, during World War I, he was in charge of tube manufacture for de Forest.

Mr. Clifford D. Babcock, in

... of sending these holes or marks ... in all but one case ...

By experiment with the apparatus the writer has found that when a transformer is exciting an oscillatory spark, the spark length varies very little, or the spark length is not so much affected by the spark length as it is by the spark length. The reason for this is as follows: If the spark length is small, then as the potential gradually rises a point is reached at which a discharge happens, but the current has not yet risen to the value corresponding to the value of the spark length, and if a spark takes place before the value corresponding to the spark length is reached, then the potential rises again and the process is repeated until the spark length is reached. Hence it is quite common to observe that the number of sparks is not necessarily the same as the number of discharges. On the other hand, if the spark length is very large, when the potential of the alternating current has not yet risen to the value corresponding to the value of the spark length, the spark length is reached, and the spark length is not so much affected by the spark length as it is by the spark length. The writer has found this statement, which he calls a spark law, particularly useful in connection with wireless telegraph.

1" gap = 30,000 V., but the air becomes ionized and if not blown out the thing is all wrong, instead of a vast no. of sparks we get a flame.

Text from Fleming's book with pencil comments by Babcock. The cipher means 'shows trouble'. The script below is: 1" gap = 30,000 V., but the air becomes ionized and if not blown out the thing is all wrong, instead of a vast no. of sparks we get a flame -

reading through a book, apparently was not content to accept the author's opinions and conclusions without debate. He agreed, disagreed, and argued, in notes he wrote in the margins, sometimes in technical language, occasionally with a touch of humor. The author of "The Principles of Electric Wave Telegraphy," Dr. J. A. Fleming, although an accomplished mathematician and an outstandingly capable "Electrician", does not appear to have been excessively endowed with that fine sense of dispassionate objectivity so essential to historical and technical authorship. In addition, since 1898, he had been employed by Marconi as one of his "Technical Advisers." Perhaps these circumstances led him to impute to Marconi the invention of practically every device in early wireless with the exception of the operator's chair.

As he read through the book, Babcock had encountered passages crediting Marconi with the filings coherer, tuned circuits, the vertical antenna, etc., but had made no comment (at least, none in writing). He finally exploded on Page 463 with an outraged: "Sully for Marc. Darned ads all through the book." Many comments

such as: "Looks good" or "Hence my tuner works" appear in the margins. After a passage discussing the use of alternating current transformers as a source of high voltage for spark transmitters, a design championed by de Forest, Babcock exulted with: "Go to it, de P."

There are many other marginal comments by Babcock but the one which intrigues the writer most is on Page 398. Under a discussion of the Zehnder Trigger Tube Fleming had appended a footnote referring to an article written by Zehnder and published in the scientific journal, Wiedemann's Annalen der Physik, in 1892. Babcock wrote a reminder to himself: "look up." The Zehnder Trigger Tube, while a far cry from the three-element tube, was probably the first device to use internal electrodes, positioned between the cathode and the anode, for the purpose of triggering an ex-

ternal source of power by means of received signals.

Did Babcock "look up" Zehnder's report? Did he discuss it with his boss, "the Doc"? From what we know of Babcock, he probably did. New ideas, and even great ones, almost invariably are born out of something that has gone before. Rarely indeed, has a new development come as a "bolt from the blue." Could discussions of the Trigger Tube have furnished a portion of the background philosophy for de Forest's conception of the "grid"? Fleming's book was published in 1906, the preface being dated April, 1906. The patent application covering the "grid" was filed January 29, 1907.

Could this ancient volume of Babcock's have contributed, at least in some small measure, to one of the most remarkable inventions of all time, de Forest's Audion? The writer likes to think it might have.

WAVELENGTH "LETTERS"

<u>Spark:</u>			
"G" - 300 meters	"H" - 1200 meters		
"E" - 378 " "	"O" - 1512 " "		
"I" - 476 " "	"P" - 1905 " "		
"J" - 600 " "	"Q" - 2400 " "		
"L" - 756 " "	"S" - 3024 " "		
"M" - 952 " "			

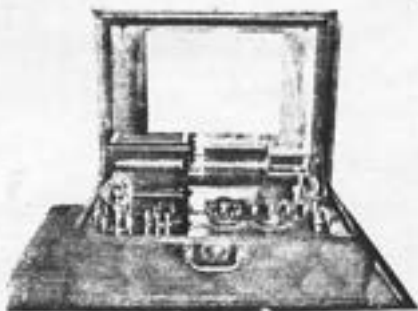
<u>Arc:</u>			
"U" - 4000 meters	"X" - 9800 meters		
"V" - 5300 " "	"Y" - 13300 " "		
"W" - 6800 " "	"Z" - 15300 " "		

Navy Waves for CW-938 and similar

radiophone transmitters were:
256, 297, 345, 400, 456 and 600 m.

This interesting supplement to K2NP's previous list should fill in most of the blank spaces. We are indebted to W7RD out in Bothell, Wash. for the info.... it was copied from his 1917 note book... fb copi..... (was recd on an original MARCONIGRAM blank which apparently W7RD had saved thru the yrs.)

WASHINGTON/BALTIMORE contacts were difficult in the old spark days due to some peculiarity of skip on 300 meters. Consistent qso's were finally made by 3JY in the early 20's when he rigged up a UV-199 oscillator using a Ford spk coil for "B" supply! This original xstr is now in the club's museum (tax to Ted Duvall) and will be on display at the Hudson Division Convention, Oct. 13, N.Y.C.



AUDION RECEIVER

Although W3JDV caters to Grebe gear, he also has some other choice equipment. This beautiful receiver (circa 1910-12) uses a DeForest Audion and is one of Jack's prize possessions.

ORIGINAL MATERIAL which makes excellent reading can be found in early issues of "Scientific American" (1901-1908). In searching for early wireless advertisements, WZYK found articles on Marconi, Feasenden, DeForest, Collins, Beardale and others. These early magazines can frequently be found at your local library.

"CRADLE OF U.S. WIRELESS" is the name of an interesting article for the amateur historian. It can be found in the July issue of "Electronics Illustrated".

TESLA SOCIETY - is an organization we have very little information about other than its interest in Nikola Tesla and his work. WJAX heard about the organization and ordered a book they recommended titled "NIKOLA TESLA: LECTURES-PATENTS-ARTICLES" It is a beautiful bound volume of 839 pages with many illustrations. Although the price is \$6.00, Thom considers it an excellent buy. For more info write:

Arthur Vanous, Foreign Importer
405 East 70th St., New York (21), N.Y.

"P" TUBES may not seem rare - but try and find one. W6YFM accidentally dropped his on the floor and is now looking for one. In the meantime, however, "Erw" picked up a Welch and Electrad diode so he doesn't feel too bad.

1882 RUSSELL CATALOG - is the newest item at WJRE. Lou believes it is one of the first printed. A straight lever key of about 1850 also joins the collection! The "gang" at the Eastern Pa. Net Picnic had an opportunity to see and hear WJRE tell about key lore....

GERMSBACK ADMINISRE - seem concentrated in the New England area. Bob Shaw, Roy Glodell and others can talk "Gernsback" by the hour! Ye Editor must confess that he is also a Gernsback fan. Together with W2EI, we had the pleasure of spending an evening in Mr. Gernsback N.Y.C. apartment at which time we taped a personal interview for the A.W.A.'s historical magnetic tape library. Eugo Gernsback tells of his early boyhood, his first interest in the electrical field, the founding of the E.I. Co. after coming to America and other historical events in his fabulous career.

DE FOREST RESPONDER - W6GE, W6JW and several others recognized the "What is it?" in the last Bulletin. As noted, it has been modified slightly, but there is no question as to its origin.

GEORGE "Ken" THOMPSON - does anyone have in their files a station listing of 2 PL when he operated in Maplewood, N.J. prior to 1912? Any authentic information would be appreciated by XYL Emice Thompson, WMFP, Christian Hill, Lovell (Oxford Co.), Maine

TRUE STORIES about interesting events in amateur radio are wanted by WJCA. If you've experienced or know of some unusual incident thru the years, drop Dave a line telling him about it.

Dave Middleton, WJCA,
Tijeras, New Mexico

HISTORIC FM PATENT - it is hard to believe but the first patent for FM modulation was granted on Feb. 10, 1902 to Cornelius Ehret, a Philadelphia lawyer. Using a spark transmitter as a source of R.F., he disclosed all the basic FM principles of transmitting and receiving as we know them today.

Of particular interest is the fact that he noted it was not necessary to increase or decrease the amount of energy transmitted to obtain modulation!

EAROLD BRIDE - 2nd operator of the ill-fated Titanic (1912)... does anyone know of his whereabouts or what may have happen to him? It is understood he left Marconi in 1919 and later came to U.S.A. The Marconi Co. (Chelmsford, England) as well as our historian, Dr. L.S.H. Baird, ex-980, P.O. Box 242, Culver City, Calif., are seeking information.

ROBINSON'S (U.S. NAVY) MANUAL is the newest book (1st Edition-1906!) in WJQR's historical library. Due to lack of space, Frank concentrates on books and tubes and is apparently doing a fb job if this is an example of his collecting....(vy vy rare)

WINDARD COLLECTION - W6WH advises us that his collection will not be on display at the Smithsonian until sometime in 1964. The delay is due to the slowness in the erection of the new building which will house the communication section.

1913 GOVERNMENT CALL BOOK reproductions are being printed by the O.O.T.C. and will be available at the Hudson Division Convention at \$3.00 each according to OOTC Secretary W2EG. A good buy for a rare book you can't obtain any other way....

GREENWOOD COLLECTION - this famous collection is now for sale - piece by piece. A wonderful opportunity for the amateur collector. Write W6GVY for list and other information. Paul Giganti, 2429 San Carlos Ave., San Carlos, Calif.

"BRASS-POUNDERS" by Alvin F. Barlow is the title of a new book just released. Published by Sage Books of Denver, it concerns young telegraphers of the Civil War. Price \$4.00

OLD TIME ADS WANTED: Somewhere between desk & printer, some ads for last Bull. got lost. Please send 'em in again, wudya, fellas! Resta U guys send in WANTS, SWAPS and FOR SALES! We'd like to have a whole page each issue!