

BRIEF HISTORY
OF THE
UNITED WIRELESS
TELEGRAPH CO.

●
1907 - 1912
●

By
Thorn Mayes, W6AX

SARATOGA, CALIF.



Brief History Of The United Wireless Telegraph Co.

by Thorn Mayes, W6AX

The United Wireless Telegraph Company formed in early 1907, had in operation by 1910 according to the United States Department of Commerce call book, 88 land stations in the USA, more than any company had had before or since. What happened to this pioneer Company that had such a meteoric rise? What contribution did it make to the just emerging wireless industry? Was it poor equipment or poor management that caused its untimely failure in 1912?

The United story is so intimately tied to the development of wireless that we should start by reviewing that industries beginnings.

An examination of the Electrical trade journals 1900-1912 gives little information on the wireless companies as they were concentrating on the items of more general interest in the rapidly growing electrical fields.

Fortunately there are still among us men who worked for United or were familiar with their operation. They have furnished much of the information for this paper. Their generous support has made it possible. I am especially indebted to Lloyd Espenschied, Gerald Tyne, the late Haraden Pratt, Ed Raser W2ZI, L. M. Clement K3AA, R. S. Palmer W7RD, Bruce Kelley W2ICE, Cdr. Richard Johnstone K6FZ, Henry Dickow, C. F. Williams W7AN, Howard Pyle W7OE and others.

The patent situation was very critical at the time United was formed. Marconi had obtained a patent in 1896 on the use of aerial and ground, and in 1900 was issued his famous patent #7,777. Fig. 1 is the connection diagram from it, transmitter on the right, receiver on the left with its 2 L-C circuits, coherer detector and relay for operating the inker. It illustrates how well 3 basic elements were covered -

- 1- Use of aerial and ground.
- 2- Inductive coupling to the aerial and ground circuits.
- 3- Use of tuning coils to obtain the desired wavelength.

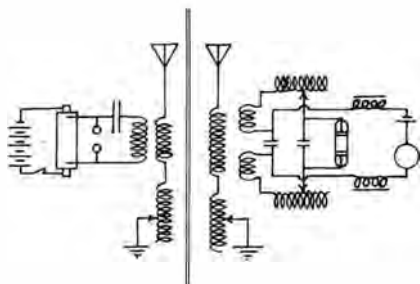


FIGURE 1
CONNECTION DIAGRAM FROM MARCONI PATENT #7,777.
ISSUED 1900 RECEIVER ON RIGHT, TRANSMITTER ON LEFT.

DeForest and others felt this patent could be avoided by the use of autotransformers in both transmitters and receivers instead of inductive coupling. To avoid the aerial and ground part of the patent a so called looped Ant. was used which consisted of bringing down leads from both ends of the aerial flat top. As these leads came into the wireless room, they were connected to two terminals of the anchor gap. This gap consisted of a 3" Dia. donut of hard rubber having 3 electrodes spaced 120 degrees apart, their inner ends clearing by 0.1". The lead from the transmitter was connected to the third electrode and when the transmitter operated, the R. F. easily jumped the gap to the antenna leads. The transmitter was not solidly connected to the antenna which supposedly avoided the patent. A suitable switch connected the 2 Ant. leads to the tuner when receiving.

Most of Marconi's early experimental work was done using a coherer as the detector. This device was relatively insensitive and was not suitable for shipboard use. In 1902 he developed the magnetic detector which was used by the Marconi companies in marine and land stations as late as 1915.

Fessenden patented the electrolytic detector in 1900. It was more sensitive than the coherer and was also suitable for marine work. A variation of this

design was developed by DeForest which he called the DeForest Responder. It was used by the DeForest companies until early in 1907.

Gen. H. H. Dunwoody of the U.S. Army discovered that a carborundum crystal acted as a rectifier and could be substituted for the electrolytic detector. He was granted a patent in 1906. This discovery was the beginning of the use of crystal detectors.

Early in his career, Dr. DeForest had joined forces with a promoter named Abraham Swartz, who later changed his name to White. He was in the wireless business to make the maximum personal gain regardless of the unscrupulous methods used or the effect on the operation of the company. There was not enough business for this new form of communication to make the operation profitable so most of the companies issued publications pointing out the rapid growth of Western Union and A. T. & T., saying that wireless would soon outgrow both companies. In this way they were able to sell more stock and they formed more companies to provide more stock to sell.

The American DeForest Wireless Telegraph Company the last formed by DeForest and Swartz had a capital stock of \$10 million. By 1906 it was the largest operating Company in the U. S. A. with 27 land stations.

The last quarter of 1906 was an eventful one for Am. DeForest as -

1- The courts upheld the Fessenden electrolytic detector patents judging the DeForest Responder an infringement which meant a redesign of the Am. DeForest receiving gear. Swartz held Chief Engineer DeForest responsible for this situation and he was essentially discharged.

2- General Dunwoody was now a V.P. in Am. DeForest so it was decided to use his carborundum detector in place of the Responder.

3- Swartz had oversold the stock of the Company and the treasury was bankrupt. When DeForest learned of this situation, his separation was completed, effective November 1906 as Chief Engineer and Director. For his work with the Company and his patents, he was given \$1,000, and somehow re-

tained the audio patents, which had not been issued and at that time were thought to be worthless.

4- In November Swartz now White, made a well publicized statement that he was going to form the United Wireless Telegraph Company that would incorporate all the knowhow then available in this field, by including the Am. Marconi Company with the Am. DeForest Company. This statement was immediately denied by the Marconi officials.

United Wireless was formed late in 1906 but did not take over operations of Am. DeForest until February 1907. The Company was capitalized for \$20 million. All assets of Am. DeForest were transferred to United except for the Atlantic and Pacific coast stations. White kept for himself the Atlantic DeForest Company the only one making money. All debts were left with Am. DeForest so its stock immediately became valueless. At this time Col. Christopher Columbus Wilson was able to dethrone White and took the presidency of United. Wilson turned out to be even more unscrupulous than White, and later died in Federal prison for his dishonesty, with White escaping.

Harry Shoemaker had been active in wireless since 1899 but had not gone into the operations end of the business. He had specialized in designing and building equipment for the Navy, had developed the reputation as being one of the leading wireless engineers and had many patents. In 1904 he formed the International Telegraph Construction Company capitalized for \$100,000 and built a plant in Jersey City. White gained control of the Company thru stock manipulation so Shoemaker came with Am. DeForest Company. He was made Chief Engineer of United Wireless Telegraph Company.

Both DeForest and Shoemaker had advised the officers of Am. DeForest that their future was in marine work, not in overland stations competing with the telegraph, but the officers were primarily interested in selling stock so continued building inland stations.

Now as to operations in those days, I quote from a letter by Haraden Pratt, "DeForest in early 1907 organized the

Occidental and Oriental Wireless Telegraph Company and acquired all the Pacific Coast assets of Am. DeForest Company for \$1 million. It built a station on Russian Hill in San Francisco to replace "PH" that was destroyed in the 1906 fire. The new station PH was completed in February 1907 by Tim Furlong who was its first operator. He sat there for over a year and never handled a single paying message because no ships then had wireless. The station was sold to United Wireless March 1908.

United tried to induce Standard Oil of California to put wireless on their tankers but Standard was afraid the open spark would constitute a dangerous fire hazard. Finally they agreed to equip their barge #3 which was towed to Seattle March 1908. Continuous communication was had all the way and Standard then equipped 10 tankers. This was the real beginning of the wireless telegraph business on the West Coast."

Fig. 2 is the United Wireless station CH-San Francisco, a 2 KW set typical

of 1909 construction. The transmitter consists of 60 cycle open core high voltage transformer with 20-30 KV secondary, a bank of Leyden jars for the high voltage condenser. Shoemaker patented straight gap is located inside the tuning helix. Receiver leads are connected to the anchor gap thru an Ant. switch and a type D tuner is the receiver.

Shipboard installations included a motor-alternator for converting the ships D. C. to 60 cycle A. C. for exciting the high voltage transformer. Control panels included motor starting rheostat, motor field rheostat for regulating motor speed, and alternator field rheostat for controlling A.C. voltage. A.C. voltmeter and ammeter were usually supplied. These sets were built in 1-2-5 KW sizes. The smaller ones being used on shipboard while the 5KW units went into important land stations.

With the exception of an experimental rotary gap installed in San Francisco station PH, United Wireless used only straight spark gap as the Fessenden and Marconi companies were in litigation over the rotary gap patents.



Figure 2 United Wireless Station CH 1909 San Francisco

United Wireless used 5 receiving tuners that are interesting as they show the development of the art over the period 1905-1912. Am. DeForest had developed 2 Syntonizers or tuners which were inherited by United. The 2 coil Syntonizer used mainly on shipboard, became the United type A tuner. A more selective set, for use in land stations, the DeForest 3 coil Syntonizer, became the United type B tuner. Both of these tuners had been designed to go with the DeForest Responder or electrolytic detector but had been converted to operate with the carborundum crystal detector.

In the fall of 1907 the first United designed tuner, the type C was introduced, shown in Fig. 3. A copy of the Shoemaker 1904 receiver, it was designed for use on tugboats and small steamers operating on 450 meter wave.



Figure 3
United Wireless "C" tuner 1907

Connection diagram Fig. 4 shows that it consisted of a single 2 slide tuning coil and carborundum detector mounted in a suitable cabinet. Tuning range was 200-600 meters. Because of the limited application, only a few were built which accounts for their present scarcity.

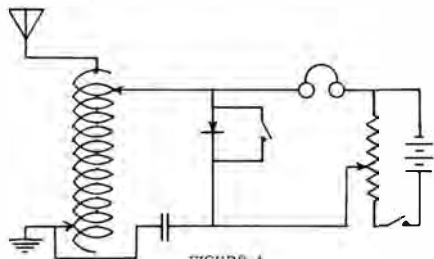


FIGURE 4
CONNECTION DIAGRAM OF "C" TUNER

The second receiver designed by United, Fig. 5, became their standard for both marine and land stations, was in production by early 1908 and they were used by the Am. Marconi Company as late as 1917. The receiver had one 2 slide and one single slide tuning coils wound with phosphor bronze wire to reduce slider wear that had been experienced on earlier sets with soft copper wire. A carborundum detector with its potentiometer, and a shunt switch for shorting the detector during transmission were mounted on top of the cabinet. Batteries were inside and had to be replaced at 3 month intervals.



Figure 5
United Wireless "D" tuner 1908

United connected the D tuner as shown in Fig. 6 for use with the looped Ant. With this connection, tuning range was 200-2000 meters. Am. Marconi changed the connection to Fig. 7 for use with aerial and ground, increasing its range to 200-3000 meters.

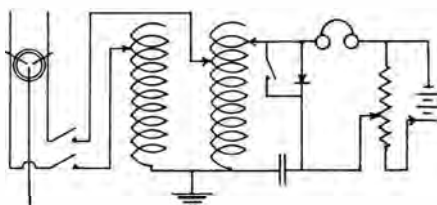


FIGURE 6
CONNECTION DIAGRAM OF "D" TUNER AS USED WITH
LOOPED ANTENNA.

In mid 1911 Shoemaker introduced a much more sensitive and selective receiver designed for land stations, the type E tuner. Fig. 8 is the United station at Philadelphia, shows both the D and E tuners being used. Few of the

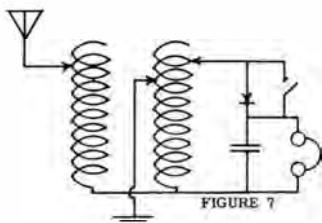


FIGURE 7
CONNECTION DIAGRAM OF "D" TUNER AS RECONNECTED BY AMERICAN MARCONI CO.

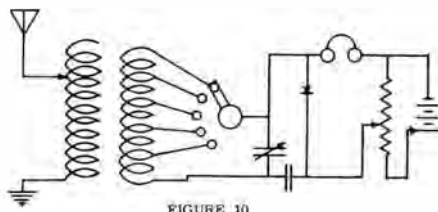


FIGURE 10
CONNECTION DIAGRAM OF "E" TUNER



Figure 8
United Wireless station in Philadelphia
Picture from Tom Appleby, W3AX

E design were produced as by this time United was in receivership and lasted less than a year. The E is shown in Fig. 9 with its connection diagram Fig. 10. The first use of a loose coupler with connections for aerial and ground instead of the looped Ant. also the first use of the variable air condenser which was of the butterfly type patented by Shoemaker. Detector system was a copy of that used on the D tuner.



Figure 9
United Wireless "E" tuner 1911

Bob Palmer W7RD tells me that he saw the drawing of an F tuner designed by Shoemaker but never built by United. It had the loose coupler inside the receiver cabinet with all controls brought to the front panel. Harry Shoemaker went with the Am. Marconi Company as Chief Development Engineer when they took over United Wireless and the F design became the basis of the Marconi 101 and 106 receivers.

Thru 1907 United had 2 manufacturing plants, both located in Jersey City but in 1908 a third plant was opened in Seattle to supply the increasing demand for apparatus, due to their rapid expansion. United started with 27 land stations from Am. DeForest in February 1907. The U.S. call books give the following number of United land stations. May 1909, 54; October 1910, 88; and January 1912, 51 United prospectus dated March 1910 states that they had 262 shipboard and 80 land stations. By 1912 there were over 400 ships equipped with United Wireless gear.

Harry Shoemaker had earned an excellent reputation as an outstanding engineer in the wireless field. As Chief Engineer of United he assembled a capable group of engineers who designed superior equipment. For example they pioneered the use of motor-alternators and high voltage transformers on shipboard while their competition was still using spark coils.

United Manufacturing plants were well run but the top officials were corrupt. Instead of concentrating on the profitable marine business, they authorized the building of stations for the primary purpose of selling stock. They spent \$3000 to build a station in Atlanta, Georgia that was not within communicating distance with any other station, but they sold \$50,000 worth of

stock in the area as a result of building the station and their fraudulent claims.

The following news item from the July 1910 issue of Modern Electrics gave an indication of events to come.

"Acting under directions from Washington, Postal Inspectors raided the luxurious offices of United Wireless at 42 Broadway NYC June 15 and arrested President C. C. Wilson and Vice-President Samuel Bogart. They were taken before commissioner Shields, arraigned on a charge of using the mails to defraud and later released under heavy bail.

Behind the charge of using the mails to defraud, the Post Office assert that the men under arrest conducted one of the most gigantic schemes to defraud unearthed in this country. It is alleged that the Company was formed for the purpose of selling worthless stock, that its claim of possessing more than \$14 million worth of assets is wholly false and that the stock has steadily decreased in value because the business is a losing one.

At the same time it is alleged that some of the officers of the Company have become enormously wealthy, that the price of the stock has been advanced a score of times, starting out at \$7. 50 and recently selling as high as \$50 per share. The par value is \$10 per share."

As the unreasonable claims of profitability of the Company made by Wilson and other officers did not materialize, they were sued by the shareholders and on May 30, 1911 were convicted and sentenced as follows:

C. C. Wilson President 3 years --
G. H. Parker Vice-President 2 years --
and F. X. Butler a Director 2 years.
All to serve their time at the Atlanta Federal prison.

At this time United Wireless went in to receivership.

The Marconi Company had sued the British Radio Tel. & Tel. Company claiming that the use of autotransformers in both receiving and transmitting gear was an infringement of their patent #7,777. After considerable technical testimony and study, Judge Parker agreed that both constructions accom-

plished the same purpose so on December 10, 1910 decided in favor of the Marconi Company this famous decision was used worldwide in settling similar claims.

Marconi had filed an infringement suit against United Wireless and the following news item from the April 1912 issue of Modern Electrics gives the results, which was the end of United.

"As a result of a merger which has been brought about between the Marconi Wireless Tel. Company and the United Wireless Tel. Company, when the suit of the former against the latter Company for alleged infringement of patent rights came up in U. S. District Court on March 25th 1912, the United Wireless Company entered no defense and consented to the granting of a decree in favor of the Marconi Company.

As a further result of the merger, all stations and contracts of United Wireless will be taken over by Marconi. This involves about 500 ship and 70 land stations in the U. S. A."

The shareholders were paid \$700,000 for the assets of United Wireless.

I cannot think of a better closing of this brief history than to quote from a letter written by Lloyd Espenschied June 1970, an outstanding wireless pioneer who lived thru this period and knew personally many of the principals.

"I hope you make it plain that the remarkable growth of United was built upon the combination of youthful enthusiasm by such as Harry Shoemaker and Lee DeForest, and the money inflow from the selling of stock to a gullible public, - and the whole thing mis-carried, because borne "in sin", and without a sustainable market. Those many stations were in a large measure "decoy" stations for the selling of stock on the part of the "get rich quick" exploiters. Money motivation all around, without honest caution as to eventuality. Something like the "conglomerate" stock promotions of today!"

T. L. Mayes W6AX

One of several original letters in A.W.A. archives received from U.W. T. operator Arthur Stockellburg, W1SS. The "station listing" on the next page is the back copy of an original U.W.T. Co. AEROGRAM presented to A.W.A. by Dick Egolf, W2WX.

UNITED WIRELESS TELEGRAPH COMPANY OF N.Y.

Marine Department

42 Broadway

NEW YORK, April 24, 1911.

SPECIAL LETTER:

To All Operators:

To be certain that all our old operators can pass the examination required by the Department of Commerce and Labor, for the issuance of licenses, or certificates of efficiency, in order that the Department may carry out the provisions of the Wireless Ship Act, which becomes effective on and after July 1st, 1911, -

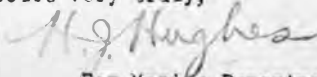
We will open a temporary school of instruction in this building on Monday, April 24th, where our operators may perfect themselves on all necessary electrical matters.

Mr. E. E. Butcher will be in charge of this school.

We hope to have five classes a week, from Monday to Friday inclusive, two hours each day, from 9:00 to 11:00 A.M.

The charge to old employees will be 50¢ per lesson; to all other operators, \$1:00 per lesson, to cover the expense.

Yours very truly,



For Marine Department.

HJH W

The Author: Thorn Mayes, W6AX of Saratoga, California, is an old time amateur (ex-6AX, K6BI, K2CE, W1CX, W9AX) who since his retirement from General Electric has done outstanding work in early wireless history. In addition to writing, collecting and restoring equipment, Thorn has recorded numerous tapes of spark transmitters with pioneer operators simulating traffic of a bygone era. A side hobby is high frequency Oudion and Tesla coils!

UNITED WIRELESS COMMERCIAL STATIONS.

Corrected to May 15, 1911.

Atlantic and Gulf Division.

LAND STATIONS.

Atlantic City, N. J.
Bayonne, N. J.
Camden, N. J.
Cape Hatteras, N. C.
Ceiba, Span. Honduras.
Colon, Panama.
Coney Island, N. Y.
(Dreamland Park.)
Charleston, S. C.
Eastport, Me.
Fort Morgan, Ala.
Galveston, Tex.
Grand Isle, La.
Havana, Cuba.
Jacksonville, Fla.
(Merchants' & Miners' Dock.)
Knight's Key, Fla.
(P. & O. S. S. Co.'s Dock.)

ATLANTIC AND GULF LINES.

American Mail S. S. Co.
Arbuckle Wrecking Co.
Baltimore Steved. Pktd. Co.
A. H. Bull & Co.
Cape Cod S. S. Co.
Chesapeake Line.
Coast Transit Co.
Consolidation Coal Co.
Clyde S. S. Co.
Clyde West India Co.
Cuba Distilling Co.
C. L. Dimon.
Denaby & Cadeby Co., Ltd.
Eastern S. S. Co.
Hamburg American Line.
(Atlas Service.)
Havana Coal Co.
Insular Line.
J. M. Guffey Petroleum Co.
Lloyd Brasileiro.
Lampart & Holt Line.
Malloy Line.
Menhaden Fish Co.
Merchants' & Miners' Trans. Co.
Maine S. S. Co.
Merritt & Chapman D. & W. Co.

Mexican Telegraph Co.
Munson Line.
N. Y. & Cuba Mail S. S. Co.
(Ward Line.)
Norway-Mexico-Gulf S. S. Co.
N. Y. & Porto Rico S. S. Co.
Nelson Line.
Old Dominion S. S. Co.
Ocean S. S. Co.
Panama R. R. Co.
Peninsular & Occidental S. S. Co.
Quebec S. S. Co.
Royal Dutch West India Mail Line.
Royal Mail Steved. Pktd. Co.
Red "D" Line.
Russian-East Asiatic S. S. Co.
Sandy Hook Pilots' Assn.
Southern Pacific Co.
Standard Oil Co.
Sun Oil Co.
Scandinavian-American Line.
Tolchester S. S. Co.
United Fruit Co.
Union Sulphur Co.
Vacarro Bros. Ind. S. S. Co.
Wilson Line.

Pacific and Western Division.

LAND STATIONS.

Avalon, Cal. (Catalina Island.)
San Luis Obispo, Cal.
San Pedro, Cal.
Los Angeles, Cal.
San Francisco, Cal.
Eureka, Cal.
Marshfield, Ore.
Astoria, Ore.
Seattle, Wash.
Friday Harbor, Wash.

PACIFIC COAST LINES.

Alaska Coast Co.
Alaska Pacific S. S. Co.
Alaska Packers' Assn.
Alaska S. S. Co.
Associated Oil Co.
Associated Trans. Co.
Bank Line (Andrew Weir & Co.)
Canadian-Australian
Royal Mail Line.
Canadian Pacific S. S. Co.
Chlopek Fish Co.
E. J. Dodge Co.
A. F. Estabrook Co.
J. Home, Fritch Co.
Grand Trunk Pacific S. S. Co.
Great Northern S. S. Co.
Hicks & Hauptman.
Humboldt S. S. Co.
Independent S. S. Co.
Inland Navigation Co.
Matson Navigation.
Chas. R. McCormick Co.
Chas. Nelson Lumber Co.

Victoria, B. C.
Ketchikan, Alaska.
Juneau, Alaska.
Koggiung, Alaska.
Nak Nek, Alaska.
Clark's Point, Alaska.
Nushagak, Alaska.
Karluck, Alaska.
Chignik Cannery, Alaska.

New England Fish Co.
Northern Pacific S. S. Co.
(Oceanic S. S. Co.)
Pacific-American Fisheries Co.
Pacific Coast S. S. Co.
Pacific Mail S. S. Co.
Pacific Navigation Co.
Port of Portland.
Portland S. S. Co.
Portland & Coos Bay S. S. Co.
Puget Sound Salvage Co.
Puget Sound Tug Boat Co.
San Francisco & Portland S. S. Co.
San Juan Fish Co.
C. A. Smith Lumber Co.
Standard Oil Co.
Sudden & Christensen.
The Tyee Co.
Union Oil Co., of Calif.
Union S. S. Co., of Calif.
Union S. S. Co., of New Zealand.
Western Alaska S. S. Co.
Wilmington Trans. Co.

GREAT LAKES LINES.

Eastland Navigation Co.
Goodrich Transit Co.
Graham & Morton Trans. Co.
Indiana Trans. Co.
Jenkins S. S. Co.
Marquette & Bessemer D. & N. Co.
Northern S. S. Co.
Northern Michigan Trans. Co.

Peavey S. S. Co.
Penna.-Ontario Trans. Co.
Pere Marquette R. R. Co.
Postal S. S. Co.
Provident S. S. Co.
Shenango S. S. Co.
Ulcan S. S. Co.
Whitney Bros. & Co.
Wolverine Line (Standard S. S. Co.)

CONDITIONS.

The United Wireless Telegraph Company of N. Y. will not be liable for any loss, injury or damage, arising or resulting from non-transmission or non-delivery of this Aerogram, or delay or error, or omission in the transmission or delivery thereof, through whatever cause such non-transmission, non-delivery or error shall have occurred.

The United Wireless Telegraph Company of N. Y. reserves the right to refuse to transmit any message.