

# Proceedings of The Radio Club of America, Inc.

Volume 48, Number 1

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Founded 1909

**FIRST SARNOFF CITATION**  
To Barry Goldwater, K7UGA, K3UIG

**LEE de FOREST**  
Father of Radio

**WHY GOOD TECHNOLOGY**  
Can't Get off the Ground

**FIRST TRANSATLANTIC MESSAGE**  
On the "Short Waves"

**UPDATED INFORMATION**  
On the Directory

**THE RADIO CLUB OF AMERICA, INC.**  
P.O. Box 2112, Grand Central Station, New York, N.Y. 10017

Founded 1909, New York, U.S.A.

Price \$1.00



# The Radio Club of America, Inc.

BOX 2112, GRAND CENTRAL STATION, NEW YORK, N.Y. 10017

Organized for the interchange of knowledge of the radio art, the promotion of good fellowship among the members thereof, and the advancement of public interest in radio.

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# First Transatlantic Message On 200 Meters

By RAY MEYERS, W6MLZ

(Fellow, Radio Club of America)



Paul was selected early in 1921 by the American Radio Relay League and the Radio Club of America to attempt to pick up amateur signals from the United States at a site located in Scotland.

Probably the foremost receiving expert in America at that time, one of the League's Advisory Technical Committee members and a member of the IRE (Institute of Radio Engineers) Paul was selected to prove to the world that the so-called useless amateur frequency of 200 meters (1500 kilohertz) could indeed be used for long range communications utilizing either spark or continuous wave transmissions.

Godley sailed from New York on Nov. 15 aboard the SS Aquitania, following a testimonial banquet in his honor in that city. The party, attended by many Old Timers, most of whom had known Paul for years, all had a feeling that this dedicated amateur, designer of the famous Paragon receivers, would make good.

The late Major Edwin H. Armstrong, himself a noted inventor and father of the frequency modulation technique, better known as FM, said at the banquet, "I'll stake my scientific reputation on Paul Godley." All present agreed.

After visiting with some British amateurs in London, Paul travelled to Scotland and there, at the edge of the sea on bleak Ardrossan Moor, amid fog and rain, he erected a tent in which the trans-Atlantic receiving station was to be located.

By midnight Dec. 7, 1921, a memorable date for any American amateur, his installation was completed and some long-wave stations were coming in on his receiver.

At 1:33 a.m., Dec. 8, he picked up a 60-cycle synchronous spark signal which he later identified as station 1AEP. For nine bitter cold and rainy days Paul made his home in the drafty tent, carefully tuning the receiver and usually with some witness by his side who could identify and confirm any calls he might hear.

During that period he picked up stations 3BP, 1ARY, 1AAW, 1BDT, 2BK, 2DN, 3FB, 9ZJ and 8 BU, all of whom were using spark transmitters, and stations 1BCG, 1RU, 1RZ, 1ARY, 1BDT, 1BGF, 1BKA, 1XM, 1YK, 2FP, 2EH, 2AJW, 3DH, 8ACF and 8XV, all of whom were using vacuum tube transmitters. Many of these stations were

Paul F. Godley, one of the most famous radio amateurs of all time, died last October 20. Holder of the old-time call 2XE, he was the pioneer chosen by the American Radio Relay League and the Radio Club of America to verify that the supposed useless 200 meters-and-under "short waves" were indeed valuable for long-distance communication.

heard several times with the most consistent one being that of 1BCG operated by Major Armstrong and other members of the Radio Club team.

There may be many of the old timers who participated in those tests still alive and on the air, 3DH is now W3DH, operated by Harry E. Stahl Jr. who is also a member of the Old Old Timers' Club.

Paul Godley closed his station on Dec. 16 and the next day he headed for London for a short stay of a day or two before taking the boat home from Southampton.

His tests proved that on the despised wave length of two hundred meters and meager power of one kilowatt or less, signals could cross the Atlantic. Oddly enough, two-thirds of the stations picked up were using low-powered vacuum tube transmitters, proving a point often disputed by the dyed-in-the-wool spark set operators, that continuous wave transmitters were superior and here to stay.

In a way, amateurs of today are having the same type of argument when they discuss the virtues of single side-band transmitters versus the old type (AM) amplitude modulation sets.

About the same time Paul was conducting his tests, station 6ZAC in Hawaii, at Wailuku on the island of Maui, heard some dozen or more U.S. mainland stations.

On Paul's return home with his report, the next step was to venture into still lower wave-lengths (higher frequencies). It was the amateur who proved that frequencies in the medium high, high, very high and ultra high frequencies were not only possible, but most reliable for both long distant and short range line-of-sight communications.

The medium-high frequencies were first exploited by  
*(continued on page 24)*

# Lee de Forest

## The Father of Radio

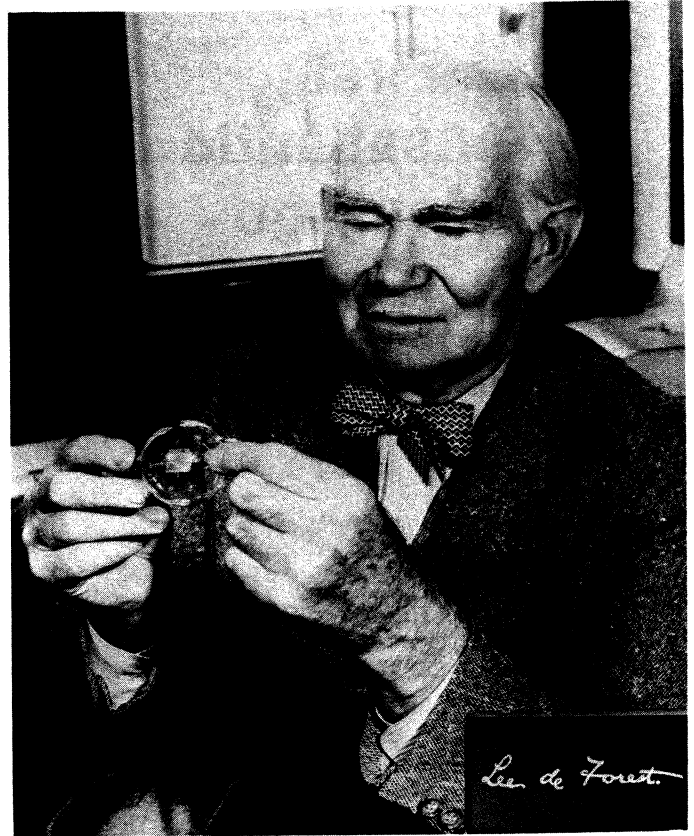
1973 Is His 100th Anniversary

By FRED SHUNAMAN

Lee de Forest — like too many other important figures in the history of electronics — is already becoming a victim of neglect by those who write the histories of radio. Given the honorific “Father of Radio” for his invention of the amplifying vacuum tube, practically none of his other work is mentioned — nor remembered. And illiterate historians — because of a superficial resemblance between the two devices — are prone to describe de Forest’s most important invention as a mere improvement on the Fleming valve rectifier. Yet de Forest was the prime figure in the early development of radio communication in the United States.

Graduating from Sheffield Scientific School, Yale, in 1899, he had chosen for his Ph.D thesis, “The Reflection of Hertzian Waves from the Ends of Parallel Wires.” Marconi was then demonstrating his equipment in England (where he was denounced by some as using the apparatus of Lodge), Popov was experimenting between his station at Kronstadt and ships of the Russian Navy, and Ducretet had sent signals from the Eiffel Tower in Paris to the Pantheon, 4 kilometers distant. Tesla had — in 1899 — actually demonstrated remote radio control in Madison Square Garden, New York City. There was enough “wireless” in the air to fire the imagination of the newly hatched Ph.D., and he immediately sought work in the communications field, meanwhile starting to work on a detector of his own, which he called the Responder.

The first de Forest detector was patterned on a principle described by the German scientist Aschkinass. A drop of liquid (de Forest spent many weeks trying to find the right one) between two contacts carried current until the arrival of an electric wave. Then its resistance rose suddenly, due to the breakdown of “little trees and bridges” of metal in the liquid. Its great weakness was that after a time — ranging from minutes to days — it would “clog” and pass current continuously.



Working in Chicago, first for Western Electric, then part-time as assistant editor of the *Western Electrician* and receiving some support from a fellow-worker, Ed Smythe, de Forest brought the Responder to a point considered usable, and — jointly with Smythe — took out a patent on it.

The famous “gas mantle” incident occurred during this period. Smythe and de Forest noted their spark discharge caused the gaslight to brighten, and devised an interesting theory to account for it. When they found it was simply the sound waves from the spark gap that caused the effect, de Forest refused to abandon the “ionized gas” theory. (Finding that a gas flame was, indeed, a crude detector of wireless signals, he patented during the next several years some 11 devices using that effect, the last one being the Audion.)

Having developed equipment that would work reliably over at least four miles, de Forest went East to cover the upcoming International Yacht Races by wireless for the Publishers Press Association, in competition with Marconi, who was working for the Associated Press. Loading his equipment on a tug, he went out to write a new page in the history of wireless.

That new page was the discovery of interference. Both Marconi and de Forest had heard of tuning, but neither considered that refinement necessary. They jammed each other hopelessly, and the race reports were transmitted to shore — wirelessly, sure enough — by wig-wag flags.

### De Forest in business

Organizing a small firm, (the American Wireless Telegraph Co.), to raise capital to improve his apparatus, de Forest struggled to keep alive through the rest of the year. In



What actually was this Audion, de Forest's most important invention? Was it — as some say — simply an improvement on the Fleming valve ["de Forest inserted a third electrode"] or was it an entirely separate invention?

The answer is that the Fleming valve and the de Forest Audion are not only two distinct inventions, but belong to two different families of detection devices. The Fleming valve is a rectifier. As such, it takes its place with Fessenden's Wollaston wire detector and the crystal detectors of Pickard and Dunwoody. The de Forest Audion is a relay — a device that uses the radio signal to trigger or control a greater amount of power supplied by a local source [de Forest's "B" battery.]. It belongs to the same family as the Branly coherer and de Forest's earlier Responder.

Because the Audion can control a greater amount of power with a smaller amount, it can amplify. It can also be made to regenerate. Oscillation and radio transmission are, of course, a product of that effect.

Dr. de Forest experimented for a number of years with devices fundamentally similar to the Audion, using the

ionized gases of Bunsen burners. In 1904 he turned to partially evacuated lamp bulbs to produce the same ionization. It is reasonable to suppose that the idea of using a lamp bulb may have been suggested to him by the Fleming valve. It is equally possible that, since both were working with glass bulbs in 1904, that they may have been working in ignorance of each other's work.

But even if de Forest had known of Fleming's valve, and [as an extreme case] had obtained one of them, opened it, placed his grid in it and resealed it, it would still have been in no sense a modification of nor an improvement on the Fleming valve, but a separate and independent invention. Lee de Forest was persuaded of the importance of ionized gas, and found that a partly evacuated bulb gave him an opportunity to work with ionized gas. It was a more reliable and rugged device than his earlier open flame devices. Fleming's rectification did not enter into his calculations — in fact one of his earliest patents on what we now know as the Audion was entitled "A Device for the Amplification of Feeble Currents."

January 1902 he met the first of the "businessmen" destined to move the de Forest fortunes into affluence and bankruptcy not once, but three times. Abraham White was a highly successful professional promoter, who was convinced there was money in the glamorous wireless field. He was not as critical as de Forest's technical friends, and asked only that the equipment show up well enough to persuade investors to buy stock. Absorbing de Forest's company, he formed the American de Forest Wireless Telegraph Co., and de Forest found himself with capital to work with — plus a regular salary of \$30 a week!

His first development was an ac-operated spark transmitter, with a "high-frequency note" of 120 Hz, which produced a sharper and easier-to-read signal than the low notes of the dc interrupters previously used. He then set up stations in lower Manhattan and Staten Island, and exchanged messages between them. The Navy became interested, though continuing to depend on the main on German apparatus, which could print messages out on tape. They bought de Forest equipment, both for shipboard use and to outfit two new stations, one at Washington and one at Arlington. This kept the de Forest plant working full time through the winter of 1902-03.

In 1903, de Forest finally succeeded in reporting the International Yacht Races by radio instead of light waves. 1903 also saw the introduction of wireless to Canada. The first press station, with which the *Providence Journal* kept in contact with Block Island, and the first commercial wireless telegraph — between Nome, Alaska, and Fort St. Michael, a distance of 107 miles, were also installed that year.

The year 1904 was even better, with de Forest's wireless exhibit the main attraction of the St. Louis World's Fair, and a contract for five powerful Government stations — at San Juan, in Puerto Rico; Key West and Pensacola, Florida; Guantanamo, Cuba; and Colon, in the future Canal Zone.

In 1906 de Forest first ran afoul of his stock-selling associates. White and his pals gutted the company by organizing a new outfit, United Wireless, and transferring to it all the assets and none of the debts of the older company. Quitting the organization in disgust, de Forest turned in all his stock, asking nothing but the patents on the nascent Audion and on the Aerophone, an arc telephone with which he had been experimenting, plus \$1,000 in cash. The United Wireless Telegraph Co. continued till 1911, when its president and a number of its directors went to jail for stock frauds. A year later it was absorbed by American Marconi, increasing the facilities of that company from five wireless

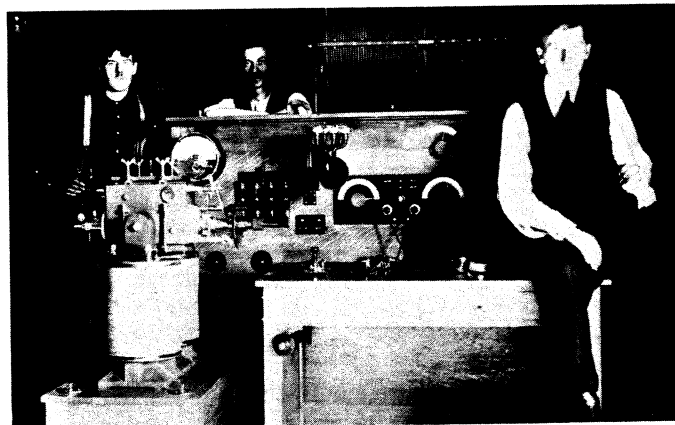
stations to approximately 50 coastal stations and 14 on the Great Lakes, and from a half dozen ship stations to about four hundred. Dr. de Forest pointed out bitterly that at the time of its forced sale, this (which might be called his first child) amounted to more stations than those of all other wireless companies in the world combined!

Organizing the de Forest Radio Telephone Co., almost without capital, he moved into the Parker Building, New York City (now famous as the birthplace of the Audion) and started to make radio telephones. During 1907 and 1908 he installed equipment on two dozen Navy craft for a round-the-world cruise. Because of hurried installation and untrained operators, results were good only in odd cases, according to de Forest. But even these results persuaded Admiral Evans of the value of the radiophone, and he became a strong supporter of it.

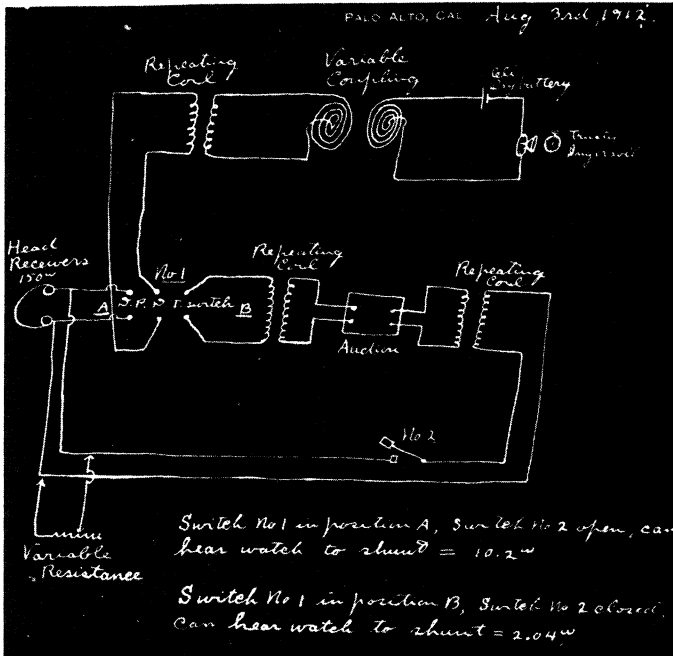
In 1908 the Italian government bought four sets of equipment for use on warships, and a little later the British bought two, after tests showed reliable communication over more than 50 miles.

## Out of business again

In 1909 de Forest again found himself the victim of stock-



Arc transmitter used by Federal in 1912, in San Francisco. Extreme left is D. Perham, pre-pioneer broadcaster, whose collection is preserved with de Forest's in the Foothills Museum. At right is Peter V. Jensen, later famous for loudspeakers.



Schematic of the world's first amplifier. "Repeating coil" is an old telephone name for transformer. Variable resistor across the phones is a crude device to measure gain.

that day would glow blue and stop amplifying if more than a few volts was applied to the plate. Realizing that the trouble was probably too much gas (de Forest was still sure that some gas was necessary for Audion action) he had a local X-ray manufacturer evacuate some tubes to a higher vacuum. The new Audions would take 120 volts, and were immediately successful as amplifiers.

While working on the amplifier, de Forest and van Etten one day connected the output of the second stage back to the first. That historic day, August 16, 1912, was the birthday of feedback, regeneration and oscillation. They heard (and described in van Etten's notebook) a high musical note as a result of the feedback experiment, and noted that it could be varied by varying the capacitance or inductance in the circuit. Further experiments — on a day when only one good Audion was available — showed that the same results could be obtained with a single tube — self-regeneration or oscillation.

Years later, when Armstrong claimed the invention of regeneration, van Etten's notebook was the instrument that convinced the judge of de Forest's priority.

De Forest decided to go East and demonstrate his new amplifier to "The Telephone Company" (AT&T and its subsidiaries, Bell Labs and Western Electric) who had long been searching for a way to boost signals on long-distance telephone lines. He was encouraged by the attitude of the Telephone Co. and decided to remain East. After nearly a year of waiting, with no money coming in from the North American Wireless Corp., de Forest found himself literally broke, with his watch in pawn.

## Sale of the Audion rights

At this time he was approached by a young lawyer, Sidney Meyers by name, who said he represented parties interested in the Audion as an amplifier. He would not reveal his backers, only pledging his "word of honor as a gentleman," that he did not represent the Telephone Co. He offered \$50,000, a much smaller sum than de Forest thought he could get for the amplifier rights. But his company, owner of the patents, was in a precarious position and might soon find the patents and other company assets put up at auction to satisfy creditors. And de Forest himself was on the verge of starvation. So he agreed, only to find a few weeks later that his customer was indeed the Telephone Co., and that its directors had allegedly been prepared to pay as much as half a million dollars for the rights he sold for \$50,000.

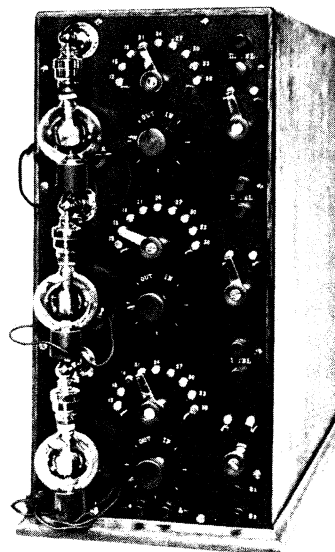
jobbing associates. The company president announced to a directors meeting that the last 20,000 shares sold, presumably to raise working capital, had been his own and not the company's and that the treasury was empty, with debts of \$40,000. Allowing himself to be persuaded not to prosecute the officer and to attempt to save the remains of the company by reorganization, de Forest was able to continue research and manufacture on a reduced scale, as the North American Wireless Corporation. An order from the Army Signal Corps to install de Forest quenched spark equipment on two transports in the Pacific offered some help. Thus de Forest arrived in California, later to be his home for many years. No funds were coming from his reorganized company, and he found it advisable to take a job with Federal Telegraph Co., now a part of ITT.

As head of Federal's research department, de Forest developed a wireless form of duplexing, switching the transmitters between two frequencies many times a second, with one operator sending on each frequency, and employing two receivers at each station. Thus two sets of messages could be exchanged simultaneously between San Francisco and Los Angeles.

On March 29, 1912, de Forest was arrested by a United States marshal, for "using the mails to defraud." Two directors of Federal Telegraph Co., "men whom I had never met," says de Forest, arranged for immediate bail, and he continued working for Federal while waiting for the case to come to trial.

## Amplification and regeneration

Working on a method of recording signals, de Forest found they were often too weak to be recorded properly. One of the earliest patents on the Audion had been entitled "A Means for Amplifying Feeble Currents," and with two assistants, Charles Logwood and Herbert van Etten, de Forest set about to make it earn the title. But the Audions of



This three-stage audio amplifier was first built in 1912 by the Federal Telegraph Co. (predecessor of ITT) during the period that de Forest was head of Federal's research department. The earliest commercial cascade amplifier, it had a gain of 120. It was demonstrated to the U.S. Navy in September, 1912.

The deal was not as bad as it has been represented; de Forest did not sell the Audion patent — simply the right to use it as an audio amplifier on wire lines. And if his company had been forced to sell its assets at auction, he might well have lost the basic patent.

The \$50,000 gave the company a new lease on life, and in 1913 — with the “using the mails to defraud” case still hanging over his head — de Forest began manufacturing audio amplifiers at High Bridge, Bronx, NY. The Navy was, as usual, a good customer.

It was also in 1913 that — by a hookup error — the Ultra-Audion circuit came into being, a circuit that de Forest used for some time in both transmitters and receivers, believing it to be superior to the two-coil method of regeneration.

The fraud case came to trial late in 1913, and some of the stock-jobbing directors of the company were found guilty and sent to Federal prison. The jury found de Forest innocent, even though the prosecutor produced unassailable proof that de Forest had claimed that it would soon be possible to send the human voice across the Atlantic with what the prosecutor described as “a queer little tube that had proved worthless — not even a good lamp!”

In 1914 de Forest ran into new legal trouble. The Marconi Co. charged that the Audion infringed the Fleming valve patent, and won the case. But the court also decided that the Audion patent was valid as well. The result was that neither de Forest nor Marconi could make Audions. The resulting confusion lasted until the Fleming patent expired in 1922, and produced some absurd effects. For example, Marconi had licensed the Moorehead Co. in San Francisco to make Fleming valves. So de Forest’s company ordered Audions from Moorehead, and sold some of them to Marconi!

Also in 1914, Sidney Meyers appeared again — in the open this time. The Telephone Company was interested, he said, in securing radio signaling rights in the Audion, and offered \$10,000 for such rights. More cautious this time, de Forest asked for \$100,000, and obtained \$90,000. The de Forest company retained the right to manufacture Audions “for amateur and experimental use.”

In 1915 de Forest used the Audion to make the first music synthesizer, selling the patent to Wurlitzer.

## Broadcasting established

In the winter of 1909-1910 de Forest had pioneered broadcasting by putting the Metropolitan Opera on the air — for one performance. Now he began a regular broadcast service from his High Bridge station. Because he transmitted phonograph records, lent by Columbia, he claims the title of world’s first disc jockey. He also became the first newscaster, broadcasting the results of the 1916 Presidential election (four years before KDKA’s heralded broadcast). The High Bridge station closed at the outbreak of World War I.

By 1916 the Telephone Co. had decided it needed still more rights in the Audion, and re-opened negotiations. Finally, de Forest sold all rights in the Audion and in radio service for public pay, plus rights in all patents pending and to be filed during the next seven years. The price was \$250,000. The de Forest Radio Telephone and Telegraph Co. retained foreign and government rights.

This deal has not been nearly as well publicized as the first one, for \$50,000. Altogether, de Forest received in the end \$390,000 for the Audion and developments based on it.

Broadcasting from High Bridge started again after the war, and de Forest moved his station to midtown Manhattan, where he had access to a better antenna. The number of listeners had swelled “into the hundreds” when the station was closed by the Federal radio inspector, Arthur Bachelor.

The legal reason was that the station had changed location without a permit. But Mr. Bachelor made it clear that interference with commercial radio stations would not be tolerated, and that “there is no room in the ether for entertainment.”

## de Forest Phonofilm

De Forest now turned to the movie sound field. He had already experimented with magnetic wire recordings synchronized with the film, but now decided to try to put the sound on the film itself. The world’s first talking picture, a Swedish film called “Retribution” in translation, was produced by de Forest Phonofilm in 1925. Phonofilm had some 34 theaters “wired for sound” at that time, but competition was strong and the movie moguls moved to another system. He retired from the field in 1929, with only \$60,000 as a settlement from one of his commercial and legal competitors.

To get capital for his sound-on-film work, he had sold control of the de Forest Radiotelephone and Telegraph Co. to a group of Detroit automobile capitalists. Hired by them as a consulting engineer, he was able to watch the company go downhill to ultimate absorption by RCA. Thus the last of the de Forest companies — like the first — finally became part of RCA.

The busy period of de Forest’s life ended with sound-on-films. In the ’30’s and ’40’s, he experimented with television, devising a color filter hardly larger than the tube screen, instead of the bulky and alarming color wheel. In his work with television he also invented the principle of radial scanning, patented in 1941. He disposed of the patent to RCA, at a lower price, he said, than he would if he could have foreseen radar (only a year or two later) and the PPI display, which depends on the radial scan.

Continuing to experiment and invent, he again found himself not oversupplied with funds. A contract entered into in the ’40’s with the Bell Telephone Labs supplied him with means to equip a new laboratory and eased his financial situation considerably. In return, he was to license Bell under all patents that might be granted him.

Dr. de Forest remained more or less active until his retirement in 1958, when he was 84 years old. His last patent — on an automatic telephone dialing device — was issued in 1957. He went to France the same year, to receive the Cross of the Legion of Honor, which was added to a number of earlier honors, including the degree of Doctor of Science from both Yale and Syracuse Universities, and awards from various learned institutions and organizations. He died June 30, 1961, after a long illness.

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[Illustrations courtesy of ITT.]

# Two Firsts at 64th Banquet



Senator Goldwater presents Vivian Carr with her membership certificate as the first woman member in the 64-year-long history of the Radio Club.



Vivian Carr, Senator Goldwater, the President's daughter Joanne Link Sotres and S. S. Ashton, Jr. of the US Law Enforcement Assistance Administration (LEAA).

Two historic events marked the 64th Anniversary Banquet: the awarding of the David Sarnoff Award to Senator Barry Goldwater, K7UGA-K3UIG, and the induction of our first woman member, Vivian A. Carr, at that time an engineer at AT&T, now promoted to Corporate Planning with the same firm. The photo below shows Barry with his citation — highlights of his talk are on the facing page.



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## Highlights of Barry Goldwater's Talk

I want to tell you what a real honor this is. David Sarnoff was one of my boyhood idols — I liked what he did and how he did it, and I think that as long as we have the memory of Mr. Sarnoff in this country and this world, there'll be those young people who realize that you don't have to be born at the top to get there — you can work your way up. And I'm very proud to be the first acceptee of this honor — though seated in this room, I don't feel that I'm exactly the most deserving — though I'd be a liar if I didn't tell you that I'd like to come to think that. I thank Harry Dannals for his kind remarks . . . I think I joined ARRL about 1923 — something like that — and in my mind it is still the proper and best means of representation for us hams.

I note that this is the Club's 64th anniversary — it's mine, too, and I'm glad you're celebrating both occasions.

When I realize the world-wide reputations of the men and women in this room in the fields of electronics and communications. I'm certainly not about to get off with my breadboard and Heathkit background, and get into any technical discussions with you.

It's a real privilege to be here, and I want to thank all of you for the great contributions you have made to the science of electronics and communications, from aviation to avionics — to everything we are doing in the world today. I agree with the men I listen to on the Space Commission, that we haven't even started! I firmly believe that in the next 50 years man will make more advancements than he has made in all the 7,000 years he's been on earth. And I think when history's written, they're going to look to the likes of the men and women that are in this room and say "Thank God we had them when they were willing to work for peanuts and people laughed at them!" Thank you.

## Proceedings Available

The Proceedings of the Radio Club of America, Inc., is supplied to all members in good standing free of charge. It is available to non-members at a price of \$1.00 per copy. As well as the current issue, a few past issues are still in stock. These include the 1973 and 1972 issues, as well as both issues of 1971. Address your orders direct to the Editor:

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## Photographs By Member

Special credit is due to member Mal Gurian, National Field Sales Manager of Aerotron. Mal is a professional photographer as well as an engineer, and not only took but processed most of the photographs that appear in this issue.

# President's Message

We have just completed what to many of us has been the most fruitful year in Club history—and certainly a year of satisfaction to your officers and directors.

As we enter 1974, the 65th year of our life, we have a lot of key challenges and a few unfilled programs we hope to get on the road in the months ahead. However, 1973 was a good year in accomplishments: let us hope 1974 will be just as gratifying. Let us recount for the record some of the activities of 1973:

1. The 64th Annual Banquet—probably the biggest and best in the long history of the Club—with our outstanding Fellow member Barry Goldwater as our honored guest and speaker. Aply administered by Jack Poppele and his team of assistants, the affair was first-rate all the way—I am certain that our many members and their guests who were fortunate enough to be present will agree with this observation.

2. At the banquet we had a number of Firsts:

a. The new David Sarnoff Citation, awarded to Barry Goldwater.

b. The election of our first woman member, Vivian Carr of ATT Engineering.

c. The distribution of the new Fellow certificates.

3. While by no means a First, the cooperation and recognition of our associate Societies: AFCEA, QCWA, ARRL, VWOA, de Forest Pioneers, etc., as shown by leading members participating in our banquet as honored guest, themselves, was very noticeable and was an important factor in the success of the affair.

4. The year 1973 was another successful one for the Club financially. The Treasurer's report in this Proceedings will support this observation, showing operations for the year were not only in the black, but a small surplus was generated, mainly due to the very solid financial support of our industry members through contributions to the Banquet and ads in the Proceedings. A second reason for the good financial year was the high percentage of members' payment of dues and the voluntary contributions by Life Members to help support cost of administration, the Newsletters and Proceedings distribution.

We lost a number of our members through resignation and death, but at the same time had a strong year for new members, so at year's end we had a total 565 on the rolls, as Honorary and Life Members, Fellows and regular Members.

Unfortunately, the Club lost a number of our most distinguished names in 1973, men whose contributions to radio and electronics will always be appreciated and

recorded in the history of the Club and industry itself.

Much of the history of 1973 is already on record through the Newsletters, the 1973 Proceedings and this current offering. So let us now look to 1974 and check on what is ahead.

1. We have attempted to maintain the Directory of Membership, as initiated with the Directory Issue of the Proceedings in 1973, by including with this 1974 issue a supplementary sheet of all 1973 new members which we hope you will place with your full Directory for your records. We have attempted to make this move very simple and logical.

2. We have already made plans for our 65th Annual Banquet to the degree that one of our distinguished "Fellow" members, Director William P. Nicol of The Directorate of Telecommunications, British Home Office, London, has accepted invitation to be our guest speaker. The date for the affair will be November 15, 1974, and Chairman Jack Poppele has already proceeded with tentative plans to again have the meeting at the Plaza Hotel in New York.

3. We have named a special committee to formulate guidelines to make it possible to initiate Chapter activities in selected localities such as Washington, DC, the Bay Area in California, and Los Angeles and any other section where substantial numbers of Radio Club members reside, and are interested in establishing active Radio Club groups in their areas. We definitely hope to get this show on the road by mid-year. Your comments and possible interest would help.

4. The success in the recent past of our mutually arranged activities with associate organizations such as AFCEA, QCWA, and ARRL, encourages us to expand this program in 1974. We hope this plan will generate greater interest for the local meetings and provide bigger audiences for our guest technical speakers.

5. We anticipate a continued very high calibre of new member applicants in 1974, and if we are as fortunate as we were in 1973, with so many top personalities joining the Club, we can be most satisfied.

6. Your Executive Committee and Officers welcome any and all comments and suggestions from the membership and hope you'll let us hear from you with recommendations, new stories related to members, and qualified new applicants for membership.



President

## Greetings to Barry Goldwater K7UGA — K3UIG

from your many friends at Alvaradio Industries, Santa Monica,  
California

President Harry Gartsman, W6ATC; Vice president Petar Gajitch, director Ray Meyers, W6MLZ.

Like thousands of other Californians, we would like to see you run for POTUS this next presidential election. We will gladly install your beam antenna on the White House at no charge.



# Why Good Technology Can't Get Off The Ground

By CHANDOS RYPINSKI

*Paper delivered to a joint meeting of the Radio Club of America and the Vehicular Technology Group, IEEE, October 17, 1973.*

The public safety and convenience is linked to the availability of ample communications, including radio. It gives us pause to hear that the police receive nearly all their calls by public telephone. What about the victim who is not near a phone? We must also ask: Why isn't there a better radio taxicab service; why no public telephones on planes and buses; why can criminals still take advantage of political boundaries to evade capture; why crimes and vandalism on public transportation vehicles can't be controlled; or why citizens can't carry miniature radios instead of guns?

Quick but wrong answer: "The FCC won't allocate enough channels for all the new and needed services." I think the radio manufacturing and operating industry is more to blame—particularly the *market-capable manufacturers and vested-interest users*. (Another respected villain is the preference of the American public for entertainment over such intangibles as public safety and industrial efficiency.)

## Radio Licenses as Property

In many services, a license to use a channel exclusively is a valuable property right. Licenses are sought, not only for current use, but for their increase in value arising from scarcity. This has created some of the much-complained-about policies of the FCC. When licenses are a gift from the government of a natural resource from which the recipient profits, it is necessary to parcel out those properties in such a way that there can be no complaints of favoritism. A giveaway will eventually exhaust the resources in the bank.

This situation is obvious in broadcasting and common-carrier telephone, but also exists in local government, transportation and special industrial — where there is need to provide for future growth and where the users already have exclusive channels to be preserved. These are less obvious vested interest users.

Those who have channels make strong efforts to keep them, rather than give up channels so that other entities may exist. A police communications officer who needs to increase the capacity and flexibility of his system will not usually look

to pooling arrangements with his neighbors, but tries instead to stake claims on the channels remaining. Large users quickly become vested-interest users.

## Market Control

Certain markets are dominated by one or a few companies, with large and successful marketing organizations that can contact more customers, and contact them more frequently, than the competitors. Assuming good product performance, such an organization develops *control of [has strong influence on?] the market*. A large number of customers become convinced that "availability" is determined by the capabilities and willingness of the trusted supplier.

What was created out of capability and performance can, with maturity, turn into *protection of the status quo against new development*.

Companies with large marketing organizations will always oppose the possibility of an intermediary being placed between them and the customer. The argument that this might result in greater dollar volume or profit does not impress. The loss of control over what the customers are told and of access to what they are saying brings out the jungle reaction. Take the 18262 FCC Docket for example: If Bell were to get all the frequency space, manufacturers as a group might sell a lot more radios, but not necessarily to users or in a system of their own design.

## What Is a Common Carrier

If one is not cumbered by legal training, it is easy to define a communications common *carrier* as an entity rendering a communications service for hire, which is regulated by government agencies. Other definitions might be invoked to prevent the introduction of new technologies. For example: "A common carrier is an entity which, unless regulated by a Public Utilities Commission, would attract sufficient revenue away from an established common carrier to do it significant economic damage." The consideration is no longer to protect the public from a monopoly, but to protect an existing entity from alternatives of higher efficiency.

The argument rarely stays with the efficiency issue, and instead is characterized as "cream skimming" of the high profit business. Then comes the question of which users should subsidize which other users of any given service.

A party rarely changes position or compromises with the opposing view. It is therefore necessary for a government body to render a decision. This at the least takes a long time, and is usually unpredictable, and sure to be unpopular or even unacceptable to a portion of the interest.

## To Attract Investment

Development ventures seeking to provide new technology consume a great deal of money, the recovery of which from



Chandos A. Rypinski

customers is problematical. Those who sit in judgment on whether money shall be allocated for such speculations, sit inside large existing corporations, or they may be venture capitalists of various shades and flavors on the outside. Most of them are greatly concerned that the money invested will be replaced by earnings from future sales. (A few don't care whether sales ever materialize, just so the price of stock goes up after the offering far enough and vigorously enough to permit them to unload.)

Ventures commonly start with perception of a user need, together with some technology that provides a solution. Some of us have a religious belief that the incentive of profit out of prospective product sales is enough to provide a satisfactory level of progress and improvement. In my own case, this article of faith has been severely battered by experience. Let us suppose that an engineer-inventor (me) says: "I know how to design and execute a radio system that will use the spectrum more efficiently and cost less than present radio systems." Let us further assume that his technology and cost analyses are sound, and that the time has come to invest on a sufficient scale to get some sort of commercial result. Knowledgeable and experienced investors will raise the following objections, exclusive of the basics:

1. The system is illegal — it's not provided for in the FCC Rules. The prediction of a rule change is not credible.
2. Given that there are entities who could purchase and operate, it is impossible to convince them that this technology is workable, because no one has done it before.
3. If a sale and user could be successfully lined up, the system operator will be discouraged by the possibility of legal action, suggesting that he is a common carrier and therefore should be regulated. The cost and effect of the legal aspects of protecting a position might undo the economies of any new technology.
4. If a technology and a small-scale market can be successfully established, the large-volume business will be lost to the dominant companies, who will make large investments to exploit the situation once the market is proven to exist.
5. The predicted economies can be realized only if the volume in which the technology is implemented is like the volumes for which present products are manufactured. So, even if the technology is sound conceptually, the economy will never be realized without appropriate volume. That volume will never be realized because of the marketing factors.
6. If your system is good, why not get Bell to buy the concept, develop the system, install the fixed stations, and let the venture make the unit stations? (This may be a workable philosophy for AT&T vice presidents, but not for individual entrepreneurs.)
7. If there are no issued patents, what protection is there?
8. The last engineer we invested in said it would be two or three years before he got positive cash flow, but he turned out to be incompetent and spent all the money in one year. Why are you any different from him?

## Agreement on Technical Standards

New industries have been built on technical agreements: stereo FM broadcasting and magnetic tape recording, for example. Further agreements have been brought about to the benefit of industry by FCC action. These obviously include modulation and channelization standards for VHF mobile radio. Other standards are operationally necessary or desirable, including applications of many of the data techniques. The only standard in the Rules that I know of is

the selective data calling definition for the air-ground telephone service, and that defines signaling that is 25 years old and painfully slow. It had to be selected because anything better would have been too contentious for agreement.

Many of the better systems are like lock and key — the mobiles and the base must fit together. This becomes nearly impossible if the fixed and mobile facilities are provided by different entities.

This is where the pseudo-common-carrier concept is prominent. If a single entity provides system design and fixed facilities, many view it as a common carrier, or at least an entity encroaching on the territory of a common carrier. Nevertheless, such a configuration is an economic, commercial and technical imperative for efficient spectrum utilization, independently of whether it has monopolistic or public service characteristics that demand supervision by a utilities commission.

The next question is whether the technical standards employed by such an entity should be common to all similar entities, or scattered over possible suppliers. The question may be phrased: What would it take to get manufacturers to agree on few enough standards to enable commercial feasibility? Answer: When a competent industry committee is assembled, it usually turns out that the delegates work for companies with substantial investments in the status quo, and their commission is to defend their employer's interest. Never does the user who is squeezed out by existing positions have a voice or even the capacity to be represented.

I have served many times on committees where my duty was to protect and enhance the value of what was already designed. It has rarely been my duty to promote something that ought to be done, notwithstanding risk of business losses to the situation that supplied my living and support. I do not know where unfettered committee delegates can come from. Those who are unrestricted very often do not have the knowledge or the involvement to render current and significant opinion, or to add to it any possibility of implementation.

## Getting Down to Cases

Much of the foregoing has been generality, which doesn't mean much unless tied down to specific cases:

**Advisory Committee for the Land Mobile Radio Services.** In the mid-'60's, I felt that this committee, when it got down to the clutch decision, was not interested in any argument that there was a technical possibility of improving the use of the existing radio spectrum. My lone voice in this arena was good for a draw in a technical committee and in a coordinating group, but was lost in the editing of the final report. However, I do not think that any number of favorable paragraphs of text in that report would have materially altered the course of the industry.

**Air-Ground Telephone Service.** In this case, the FCC came forward in Docket No. 16073, July 1, 1965, proposing the possibility of a 60-channel system in two 300-kHz bands of available frequency space. Notwithstanding a favorable report of an RTCA Special Committee, published in Document DO-130 and supported by Bendix Radio, Collins Radio, King Radio, Air Transport Association (Frank White) and myself, there was no constructive action. This may have been related to the strong dissent of Motorola, General Electric, AC Spark Plug and the AT&T. It is wrong to presume that this matter, which resulted in at least a decade of postponement of adequate telephone service in passenger



airplanes, resulted from any technical problem (though technical arguments raged with gale force intensity).

**Automatic Transmitter Identification.** A current matter is the Class E Citizens Band Docket No. 19759, which asks, among other things, for comment on automatic transmitter identification. There is an EIA committee to form an opinion on this matter. What the industry can agree on is, that they do not want added cost for equipment (which would reduce the size of the market) merely for the convenience of FCC regulation. I feel that to oppose automatic transmitter identification on the grounds of near-term manufacturing cost is incredibly short-sighted. Automatic enforcement of regulations has to begin somewhere, so that law-abiding citizens are not denied radio and its benefits by scofflaws.

We all know that the cost of things done in quantity by digital methods has dropped drastically in the last few years. Cost is a temporary problem.

**Computer-Dispatched Taxicabs.** Telephone-ordered taxicab systems are plagued by the problems of call stealing, possible corruption of the dispatcher in favoring certain cabs, auxiliary transmitter power amplifiers to enhance capture probability, no-show cabs, no-show customers, cabs that do not arrive for a long time, and other difficulties. None of these problems trouble the Diamond Taxi Co. of Montreal, where each cab has a two-way unit, and a programmed PDP-8 computer is used at the dispatch center. It is remarkable that the system is there in the first place, a decision to go having been made about three years ago.

It is also remarkable that there has not been more proliferation of the system, or others like it, since it is simple fact that it works well. The difficulty must lie with marketing and commercial constraints. The system will not be offered by a company that doesn't have it. It will not be ordered, except on the basis of a no-risk transaction, by any user. It cannot be offered, except by a major radio company, because that is where the preponderance of the contributed value lies.

## Conclusions

1. There is a great deal of available technology to make substantial improvements in the use of radio frequency. Radios can cost a lot less and be used by many more people, resulting in significant improvement in public safety, industrial efficiency, and convenience to citizens. But this technology cannot seem to get off the ground.

2. The process by which things happen starts with ideas, but in a very short interval they must be backed with money investment. This is where many parties other than the engineer-inventor start to participate. The controllers of money are reasonably willing to make investments if it can be demonstrated that they will be recovered from future sales.

(This possibility is very hard to establish realistically. The obstacles are many, not just simply competition. The government regulators take positions related to present art, and thus indirectly support the established patterns of supply and use. Few customers have the courage to buy something that is untried and unproven, and would rather protect their rear by buying a name. In the name of good, clean, competitive selling, the marketers of the established companies say that "if we don't have it, it's not worth having," and "if it's worth having, we'll have it next year.")

3. The major hazard is the conceiver himself. His desire to get the show on the road will impel him to understate the amount of money required or the degree of achievement the initial sum of money will represent. As a result, he is sure to run out of money before there is commercial success. At that point, he must acquire money from those who ride long shots — not an easy experience for persons trained in technology rather than finance. A very similar cycle can take place within large companies, where funding of a project may be cut off after a year or two with insufficient results.

4. The decisions of those who allocate resources in our industry are much more complicated and technical than they have ever been. A person who can compute the payout on leasing *vs.* buying is hardly prepared to deal with new technology investment. Even worse, some of these investments should be made in the face of a disqualifying fact, which instead should be regarded as a problem that will be overcome.

5. At the other extreme, the country can ill afford to fail to use the new potential technology; yet it may do so to protect established patterns and their related investments. The alternative is to forfeit new industries and world markets, and perhaps to see our own markets penetrated from offshore where there is more courage in new investment.

6. The young men with ideas and energy who want to do things better are a precious resource. They should not be discarded because they overspend their budgets and take more time to do things than they said. The focus of attention must be on the values that are being produced, because our society needs them — even at the extra cost.

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## 64th Anniversary Banquet

The 64th Annual Awards Banquet of the Radio Club of America will be recorded as the most widely attended and one of the most interesting in the history of the association.

The Club met at the famous Plaza Hotel, 59th St. and Fifth Avenue. Members from almost every state were represented; the honor for long distance attendance goes to Mr. and Mrs. L. J. Larsen who traveled from Vancouver, Washington.

The club was fortunate to have as honored guest our Fellow, Senator Barry Goldwater, K7UGA-K3UIG, who was awarded the new David Sarnoff citation for

significant contributions in electronic communications. Senator Goldwater made the trip to New York in a jet which was provided by Mr. Lou Aronson, President of Ronson Corporation. Alexander Yankaskas, Chief Pilot for Ronson and formerly associated with Senator Goldwater during the Korean war, piloted the Senator from Washington to New York and return.

Fellow awards were given to 22 members of the Radio Club by Fred Link, President. Their names and photos appear on page 16. The acceptance speech on behalf of the Fellows was made by Dr. T. C. Tsao, senior research scientist, Columbia University Electronics Lab., retired. Fred Link reported on the progress of the Club during the past year, during which the total membership reached 557.

A significant first was announced by Mr. Link at the dinner when a 64-year-old precedent was shattered. Until 1973 the Club was an all-male-oriented society. On November 16th Fred Link reported that our 565th member would be Mrs. Vivian Carr, an engineer at American Telephone and Telegraph Co., 195 Broadway, New York City. The announcement of this important milestone received the 100 percent endorsement of the attending members.

Frank Shepard announced the results of the 1974 election for officers and directors, recorded elsewhere in the issue (inside front cover).



Frank Shepard, secretary of the Club, as he prepares to read the election returns.



## Radio Club's Largest Ever!

A total of 300 persons attended, many whom were rewarded with prizes at the conclusion of the Banquet. The 64th anniversary of the Club was financially supported by organizations and members through a double-take advertising schedule which is identified in our program and reprinted in this issue. The Radio Club is indeed grateful for their support.

Senator Goldwater was presented with a Hammond World Atlas, to enable him to locate hams with whom he communicates via his radio stations K7UGA-K3UIG. Special recognition is extended to the many members of the committee who made the 64th a success! Stuart Meyer and Bob Harvey for deficit financing, Mal Gurian for his photographic excellence and arranging 1972 photo of Who's Who. Leo Sands for his research and editorial on the Radio Club of America, Jerry Minter for his masterful "tape" recording of the proceedings, Loren McQueen for his program and seating arrangements, Vivian Carr, who arranged the first music by Mark Towers Orchestra for the Club and to the Hostesses: Mrs. Joanne Link Sotres, Mrs. Lolli Glimm, Mrs. Susan Armitage, Mrs. Pauline Poppele, Miss Lorraine Poppele, Miss June Poppele, for their expertise in welcoming guests.

Special credit also goes to Fred Link, Ex Officio Chairman, for his vision in the preparation of the Sarnoff

citation which was designed and prepared by R.C.A. Corp., and finally to Mr. M. Corrodino, president of the Dixon Press in Passaic, New Jersey for his indulgence and assistance in the preparation of the six-page printed program distributed at the Banquet.

A hand World Atlas, the gift of Steve Hammond, President of the Hammond Map Company, was distributed to each guest. Credit goes to these, and many others who were the "man behind the man".

**Jack Poppele**  
Banquet Chairman



Jack Poppele, architect of the affair and master of ceremonies, presides at the microphone.

## 22 New Fellows This Year



Members elevated to the rank of Fellow at the 1973 Banquet: Left to right: John W. Richardt, Jr.; Jack Renner; Lionel C. Skipper; Jack G. Anderson, Thomas F. Carlson, T.C. Tsao, William Fingerle, Jr., A. Lafayette Walsh, Julian Millar, Robert Lewis, Wayne Nelson, Robert Merriam. Citations follow:

**Fred W. Albertson, Washington, DC.**  
*Lawyer and radio engineer.*

For accomplishments both in the fields of radio engineering and electronics law, and for organizational work in both fields. —

**Jack G. Anderson, Avon CN.**  
*President ILC Industries. Director of the Radio Club.*

For innovation and activities in amateur radio and military electronics; and for pioneering in the industrial team approach to electronic systems for military programs.

**Carl T. Bradshaw, Crystal Lake, IL.**  
*President, CATV Division, Oak Electro/netics Corp.*

For direction in the design and development of CATV; and for achievements in the field of international law.

**T. W. Carlson, Patterson, NJ.**  
*Supervising Engineer, North American Phillips Corp. Director, Radio Club of America.*

For accomplishments in the development and design of municipal communications systems, and in the design and development of message switching equipment.

**A.G. Cooley, Austin, NV.** *Retired radio and facsimile pioneer.*

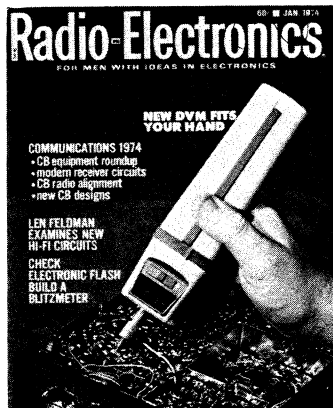
For pioneering in radio facsimile communications, and for widespread communications activities, ranging from Alaska to Little America.

**Charles Dorian, Washington, DC.**  
*U.S. Coast Guard (retired)*

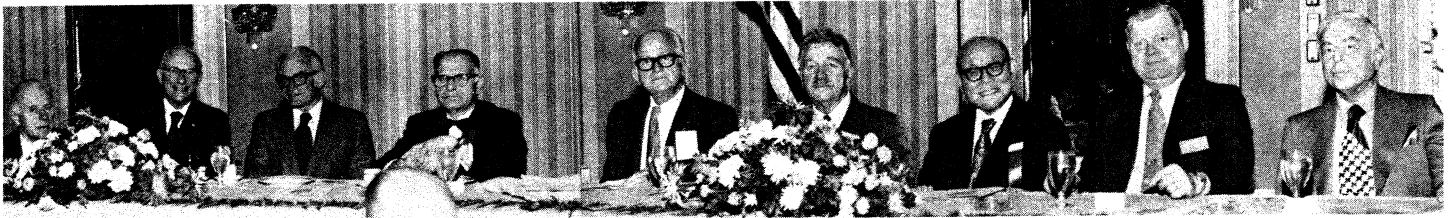
For technical and organizational services in communications, particularly in the maritime services.

**William Fingerle, Jr., Old Greenwich,**

## Greetings To The Radio Club of America From the Pioneer Electronic Publisher



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A close-up of the group at the head table. From left to right: Secretary Frank Shepard, Frank Gunther, Senator Barry Goldwater, President Fred Link, Banquet

Chairman Jack Poppele, vice president Sam Harmatuk, Dr. T. C. Tsao, Harry Dannals, President of ARRL, and treasurer Dave Talley.

*CN. President, Cook Instruments, Inc., Director, Radio Club of America.*

For pioneering in design and development in radar and in AM, FM, ionosphere and microwave transmitters.

**Ralph M. Heintz, Los Gatos, CA.**

In recognition of a career of 67 years in amateur and commercial communications, and for contributions to vacuum tube development.

**Frank J. Hollister, Glen Head, NY. Communications Engineer, American Power Corp.**

For services in the design of power-line carrier communications, and in suppression of power-line interference to radio, especially on super-high-voltage lines.

**Harold A. Jones, Scottsdale AZ. Communications Consultant.**

For management and direction in the field of commercial electronic communications.

**Robert F. Lewis, Lincroft, NJ. Chief Engineer, Prodelin, Inc.**

For developments, innovation and inventions in antennas and transmission lines.

**Robert W. Merriam, East Greenwich,**

*RI. Owner, Merriam Marine Radio.*

For services in the preservation and documentation of early radio material, and for his work with the New England Museum of Wireless and Steam.

**Julian Z. Millar, Summit, NJ. Telecommunications Consultant.**

For distinguished service in military communications, and for continuing service in military and civilian electronics organizations.

**Wayne M. Nelson, Concord, NC. Owner-Manager Station WHIP.**

For activities as collector-historian of early wireless equipment and particularly early literature and magazines.

**Wm. P. Nicol, London, England. Director, Directorate of Communications, British Home Office.**

For distinguished service in telecommunications administration.

**C. Edwin Otis, Ormond Beach, FL. Management Consultant.**

For achievements in electronic training and in configuration management.

**John R. Renner, Washington, DC. President, Advanced Technology Systems.**

For achievements in communications analysis and design, and services in international conferences and organizations.

**John W. Richardt, Jr., Hackettstown, NJ. Professional Engineer.**

For services in amateur, communications and other organizations, particularly in New Jersey.

**Hubert L. Shortt, Winston-Salem, NC. President, Technograph, Inc.**

For pioneer work in the broadcast field and for services in the printed-circuit industry.

**Lionel C. Skipper, Roslyn Heights, NY. Project Engineer, Grumman Aerospace Corp.**

For services in the fields of aerospace engineering and systems coordination.

**T.C. Tsao, New York, NY. Professional Engineer, NY and NJ.**

For achievements in telephone engineering and administration, and in scientific electronics research.

**A. Lafayette Walsh, New York, NY. Retired**

In recognition of a career of more than 60 years in amateur radio and of numerous services in amateur and other electronic associations.



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**MOBILFONE**





Speaker at Joint Meeting, March 26



Charles A. Higginbotham, the new Chief of the Safety and Special Services Bureau of the FCC, is the guest speaker at the 10th Annual Amateur luncheon meeting sponsored by the New York QCWA, the Radio Club of America and the New York chapter of the AFCEA at the Engineers Club, 32 West 40th St., New York City, March 26. As of that date Mr. Higginbotham is a Fellow of the Club. His subject: Re-regulation of the radio services under his direction.

Mr. Higginbotham was Chief of the Industrial and Public Safety Rules Division from August 1971 up to the time of his present appointment. He is now in charge of the whole Bureau, which has jurisdiction over amateur radio, Citizens band, aviation and land mobile forces. He joined the Commission in 1948 as an electronics engineer.

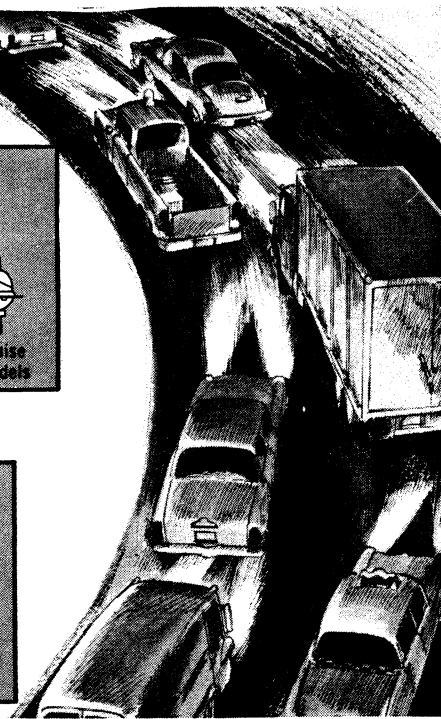
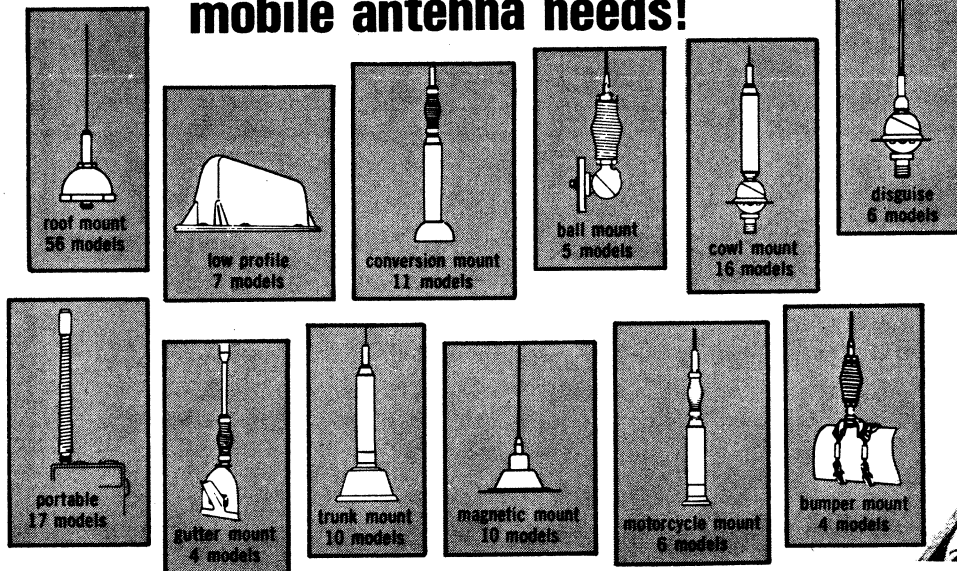
Born in Martinsville, WV, Mr. Higginbotham attended the American University. He is a registered professional engineer and a retired Lieutenant Commander, USNR. For the last 20 years he has been involved in rule making and regulatory activities in the private land mobile and microwave services.

THE CLUB'S STANDING COMMITTEES

- AFFILIATIONS:** Frank Gunther, David Talley, Ray Meyers, Jack Poppele, Harry Dannals, Barry Goldwater.
- AWARDS:** Leonard Kahn, Jerry Minter, Julian Millar, Wm. Fingerle, Stuart Meyer, Frank Gunther.
- BANQUET:** Mr. Poppele will select the committee.
- CONSTITUTION:** Stuart Meyer, Aubrey Childers, Jack Anderson, Frank Shepard, David Talley.
- FINANCE:** Wm. G. H. Finch, David Talley, Sam Harmatuk, Harry Houck.
- MEETINGS:** Harry Boyle, Leo Sands, Jack Anderson, Mal Gurian, Stuart Meyer.
- MEMBERSHIP:** Tom Regan, John A. McCormick, Frank Devine, Paul K. Dawes, Harlan Wand.
- NOMINATIONS:** Jerry Minter, Tom Carlson, Wm. Fingerle, Harry Houck, Jack Poppele, Wm. Kanz.
- PAPERS:** Tom Carlson, Leonard Kahn, Aubrey Childers, Wm. Offenhauser, E. J. Quinby, A. Prose Walker.
- PUBLICATIONS:** Fred Shunaman, Alfred Menegus, Vivian Carr, Ero Erickson, Alex McKenzie.
- PUBLICITY:** Leo Sands, Bob Tall, Ray Meyers, Val Williams, Alfred Menegus, J. Rhett Macmillian.

The first name in each committee is that of the chairman.

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## FINANCIAL REPORT FOR THE YEAR 1973

### 1 — Receipts:

a. Dues received from 49 New Members, 295 Regular Members and 100 Fellows	.....	\$4,583.00	
b. Sale of Club Pins	.....	335.00	
c. Proceedings ads and sales	.....	1,382.00	
d. Interest and dividends earned	.....	389.75	
e. Contributions	.....	167.00	
f. Miscellaneous	.....	6.00	
g. Surplus from 64th Annual Banquet	.....	257.67	\$ 7,120.42

### 2 — Expenditures:

a. Fees and office expenses of the Executive Secretary, including postage and telephone	.....	2,429.59	
b. Meetings and publicity expenses	.....	458.19	
c. Publication and mailing expenses of one issue of Proceedings and three Newsletters	.....	1,865.90	
d. Insurance and legal fees	.....	73.55	
e. Miscellaneous	.....	34.03	\$ 4,861.26

3 — Surplus from Operations: ..... \$ 2,259.16

## BALANCE SHEET AS OF DECEMBER 31, 1973

### 1 — Cash:

a. Checking account in Marine Midland Bank	.....	5,985.95	
b. Life Membership Fund in Emigrant Savings Bank	.....	1,253.63	\$ 7,239.58

### 2 — Investments:

a. 100 shares AT&T Co. stock @ \$50-1/8	.....	5,012.50	
b. 3 AT&T Co. 8-3/4% Debentures	.....	300.00	
c. 6 AT&T Co. Warrants @ \$4-1/4	.....	25.50	\$ 5,338.00

### 3 — Club Properties:

a. One projector screen	.....	78.39	
b. 108 Fellow club pins @ \$1.79 each	.....	193.32	
c. 129 Member club pins @ \$1.00 each	.....	129.00	
d. Miscellaneous furniture and fixtures	.....	1.00	\$ 401.71

4 — Total Assets: ..... \$12,979.29

5 — Liabilities: None Outstanding ..... 0

6 — Net Worth: ..... \$12,979.29

## Valued Members Have Passed On

We are saddened to have to report the loss of several members during the past year.

Paul F. Godley, who died October 20, at the age of 84, was the best known to Club members. Hero of the IBCG trans-Atlantic tests, part of his story appears in this issue.

J. E. Smith, of the National Radio Institute, died September 30. He was also a nationally (and internationally) known figure because of his school, which was founded in 1914, and is said to have enrolled nearly a million students in its 60 years of existence. Mr. Smith, who was 92 years old, — before he established the Institute was a teacher of electrical engineering who introduced radio into his classes in 1907.

Larry Cumming, who was a designer of a number of the early New England broadcast stations, and held during his life a number of important positions with the IRE, ITU and IEEE, died February 24.

Howard B. Day, a member since 1912, died April 8. It was he and Charles Apgar who, in 1916, recorded the high-speed messages from the German station at Sayville, NY, and by playing them back at lower speed, demonstrated that the station was engaged in espionage.

Norman Wunderlich, a Fellow in the early '30's, and recently re-instated as a member, died in the early summer, and in the early autumn (Sept. 19) we had to record the death of:

Carmen R. [Randy] Runyon, also a member from 1912, and an early co-worker with Major Armstrong in FM. His son, Carmen Runyon III, died less than a month later.

Robert L. Kennedy, founder of Kear & Kennedy, died November 28, as a result of a fall in his home, and

John J. Graham, who held high-ranking positions over the years with such companies as RCA, ITT, General Dynamics and others, died this year, on January 14.

## World Atlases Lead In Banquet Prizes

Some twelve persons were winners of door prizes distributed to holders of lucky tickets at the Annual Banquet November 16. Of the 12 prizes given, six were Hammond World Atlases, of the type presented to Barry Goldwater, "to help him locate the stations he works."

In view of the function of the prizes, it is interesting to note that at least four of the recipients are old-time amateurs, who might be expected to make good use of the books.

Bob Merriam, W1NTE, for example, has been a ham since 1941, Wayne Nelson has held his call W4AA continuously since November, 1919, and Nat Pfeffer, W1AIM, has been a ham as far back as anyone cares to remember.

The account does not tell us, however, whether it was the hams who received the atlases, or whether they may not have been the recipients of silver ice buckets or some of the other prizes offered.

Besides those above, the lucky winners (more than half of whom may also be amateurs) were Tom Carlson, George Ryan, Robert F. Schwede, Alvin Reiner, Charles Vaughan, Herb Holzberg, Nick Alimpich, R. Osterman and Perry Osborn.



## Bill Nicol to be Speaker At 1974 Banquet Meeting

William C. Nicol, as our readers know from recent Newsletters, is the guest speaker at our 1974 Anniversary Banquet. He is a Scotsman with more than 38 years experience in the telecommunications field, a lively sense of humor and an unusual feel for communications on both home and international levels.

He is now Director of the Office of Telecommunications for the whole United Kingdom (England, Scotland and Wales) and as such is responsible for overall direction of all public safety, police, fire and emergency communications in that area. He has for the past six years headed Research and Development as well as Operations involving equipment in the UK.

Mr. Nicol's experience in civil and military communications goes back to before World War II, when he led a Royal Air Force fighter squadron in defense of Britain. Later in the war he served the RAF as Communications head in Sicily, North Africa and the Far East. Later he was Director General of civil aviation for all Commonwealth activities in the Far East, based on Singapore and Hong Kong.

Bill is well known to top police and Federal communications people in the United States. Among his other distinctions, he is a Fellow of the British Institution of Electronic and Radio Engineers (IERE), a member of the Institute of Navigation and of the Royal AERO Society.

## First Fellow Certificate



The new Fellow Certificate is exhibited by Dr. T. C. Tsao, standing between president Fred Link (left) and vice president Sam Harmatuk. Dr. Tsao was selected to accept the first new certificate on his unique record as engineer and administrator. Receiving engineering degrees in China, England and the United States, he was professor of electrical engineering in Chekiang University in the early '30's, then Commissioner of Telecommunications, planning, designing and constructing the telecom-

munications network for the five southeastern provinces of China. He then became ministerial Director of Posts and Telecommunications of China, and after the war, Commissioner of Public Utilities for Greater Shanghai, with the responsibility of reconstructing and rehabilitating its utilities. Coming to the United States in 1950, he was for a time with Con-Edison, and from 1958 to his retirement in 1971, Senior Research Scientist with the Columbia University Electronics Laboratory.

## Advertising Note

Inquiries about advertising in forthcoming issues of the Proceedings can now be addressed to our new Advertising Manager: Stuart F. Meyer RCA Suite 953 1901 North Moore St. Arlington, VA 22209

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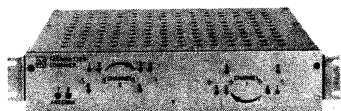
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**Bill Lear Is  
Man of the Year**



**Club Fellow and former  
Director Bill Lear was presented  
the "American Man of the Year"  
Award by the Lions Club In-  
ternational as a key part of the  
ceremony at the interval of the  
American Bowl football game,  
Jan. 6, 1974. Bill, unfortunately,  
was unable to receive the award in  
person. His recent letter to Fred  
Link appears below:**

**Dear Fred:**

I am so sorry I couldn't be with you and my good friend Senator Goldwater, but am glad the dinner was a success. Was sorry to hear of your illness; you know I too had a bout with the hospital. It seems I swallowed a toothpick which, after floating for some time, punctured the colon and caused peritonitis.

I was very happy to be the recipient of the Janus award although dreadfully sorry about not being able to go to Tampa and receive it myself. I am now feeling as good as new if not better, despite all the crap you might have read about my steam bus and its failure in Los Angeles.

All that happened in L.A. was that the hole that supplies oil to the turbine bearing decided to inhale a human hair and shut off the supply of oil. The bearing objected by burning into a cinder — ruining a beautiful chance of getting some good publicity and ending up by getting a lot of crap, which, as you know, never bothers me ... never bothers ... never bothers me.

I am back on the steam car now as I am sure we can beat hell out of anything the automobile industry can do in the making of a pollution-free car that will still give 14 to 16 miles per gallon of gas.

Moya and I are still traveling around in our LearJet and I have a new one under design that will make the present LearJet look and perform by comparison like the original Orville Wright contraption.

Sincerely,  
Bill Lear

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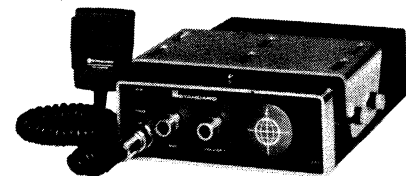
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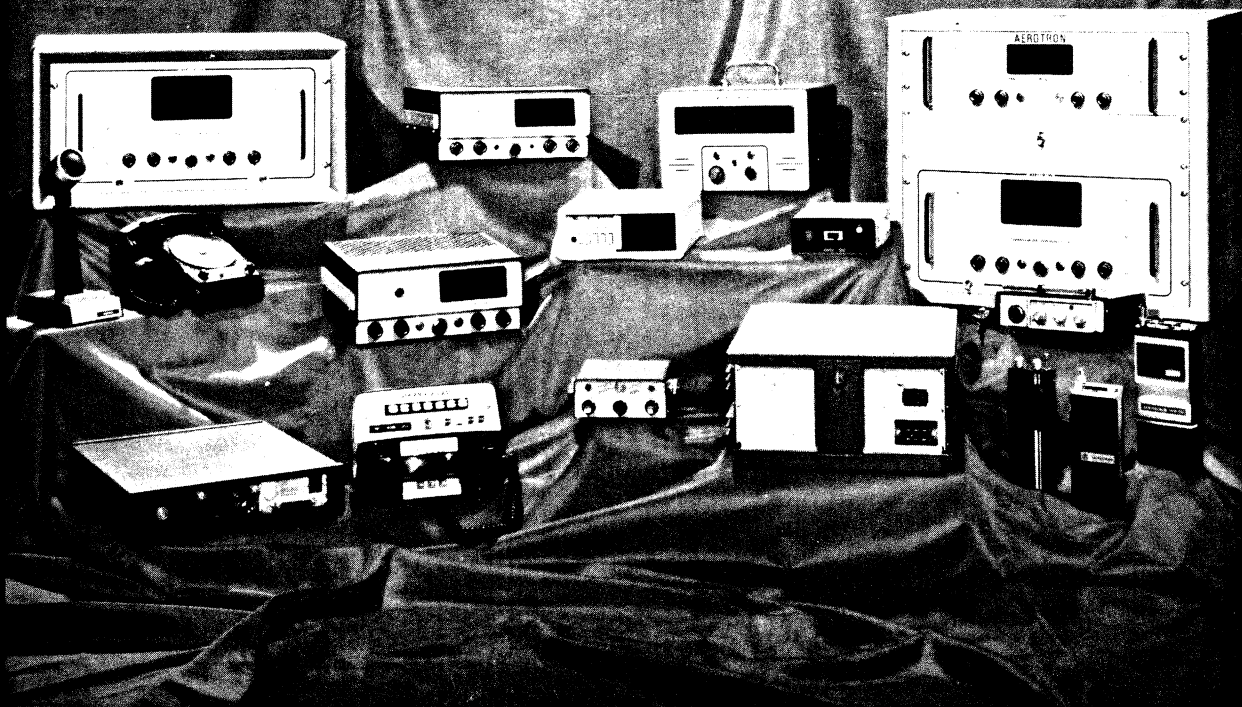
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(continued from page 3)

an amateur aboard Admiral S.S. Robinson's flagship USS Seattle during our trip to Australia in 1925. On board we carried Lieut. Fred Schnell, USNR, one of ARRL's technical staff members using our amateur call of NRRL.

As flag chief radioman you may be sure that, between watches, I often gave out with a CQ over the amateur circuit.

First amateur contact with Japan was made by Charles York, U7HG, in Tacoma when he took a message from JUPU. (The prefix U was used by US amateurs before the prefix W was adopted). This span of 4650 miles was the start of the contacts that amateurs experience every day. As many of my readers must admit, amateur radio has certainly been a boon to the lonesome American military man serving our country overseas.

## Another 1BCG Listener

Club Member Gordon V. Peck, possibly the only American other than members of Godley's team who heard the 1BCG signals from a European QTH, writes this about his experience:

I was radio operator on the S.S. Eastern Admiral, a tramp freighter returning from the Orient and stopped at Cuxhaven, near Hamburg, Germany. It was in December, 1921, and our ship became frozen in the ice in the Elbe River. As a diversion, I thought I'd try to pick up some German or French ham activity.

Since the ship's receiver would not pick up signals in the 160-to-200 meter range, I made a makeshift single-circuit regenerative tuner and hooked it up to the detector circuit of the ship's gear. Joe Parker, the steward, let me have a cardboard pill box with a long sleeve-type cover that provided a tickler adjustment.

I guessed at the number of turns, but had no way of being sure what wave band it would cover. When I turned the rig on there was complete silence and I wasn't able to pick up a thing. I thought maybe I was outside the band altogether. Then somebody started sending a string of V's. Then the signals squelched out. The station sounded as if something had broken down. About 10 minutes later, just as I was giving up, the V signals reappeared. This

time the station sent "1BCG testing," and started to send readable signals which, along with some other U.S. stations that followed, gave me the first inkling that some kind of a test was in progress. Note further:

1. I had no prior knowledge of the test, having left New York in April, eight months before.
2. Obviously the dead silence I first experienced was due to the European hams refraining from transmitting because of the test.
3. When the first signals squelched out, it sounded like a capacitor breakdown; later proved by comparing notes with George Burghard back in the States.

I gave my pillbox tuner to Major Armstrong at a subsequent meeting, and not so many years ago Paul Ware and I spent a whole night in George Burghard's penthouse apartment at the south edge of Central Park helping him with his scrapbook of this great event.

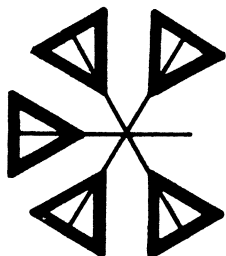
*Gordon (K4RG)*

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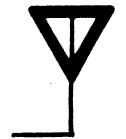
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## New Members

Some 47 new members have joined the Club since the Directory Issue of the Proceedings was published last year. If you place this page in your Directory Issue you will have a complete Directory up to and a little beyond the end of 1973.

- Amoscato, Tom (M 1973) Amtol Radio Communications Systems, Inc., 150-47A 12th Road, Whitestone, NY 11357
- Aylor, Raymond P., Jr. (M 1973) 4708 Argyle Ave., Garrett Park, MD 20766
- Billings, Raymond H. (M 1973) 1948 W. Mercer Ave., College Park, GA 30337
- Bishop, William T. (M 1973) 4936 N. Kansas Ave., Kansas City, MO 64119
- Bradford, William J. D. (M 1973), The Antenna Specialists Co., 12435 Euclid Ave., Cleveland, OH 44106
- Brooks, Carl N. (M 1973) Box 1008, Arlington Heights, IL 60006
- Busignies, Henri G. (M 1973), 71 Melrose Place, Montclair, NJ 07042
- Carr, Vivian A. (M 1973), 645 Hoey Ave., Long Branch, NJ 07740
- Crabb, Robert C. (M 1973), 22454 Galilee St., Woodland Hills, CA 91364
- Dannals, Harry J. (M 1973), 16 Arbor Lane, Dix Hills, NY 11746
- deCubas, Jose D. (M 1973), 2148 Maney Drive, Jacksonville, FL 32216
- Diamond, Nicholas W. (M 1973), 18 Navy Drive, Delran, NJ 08075
- Dux, Walter C. (1973), 9014 Monroe Ave., Jacksonville, FL 32208
- Elliott, Max S. (M 1973), 13501 Wheeler Place, Tustin, CA 92680
- Ferrell, David D. (M 1973), 601 Twelfth Ave. S.E., Waseca, MN 56093
- Fisher, Lester (M 1973), 4398 Shady Bend Drive, Dallas, TX 75234
- Griese, Raymond H. (M 1973), 405 Giannini Drive, Santa Clara, CA 95051
- Grove, Ronald E. (M 1973), Pye Telecommunications Ltd., Newmarket Road, Cambridge, ENGLAND CB1 5ER
- Hajek, Robert J. (M 1973), P.I.C. Communications, P.O. Drawer H, Riverside, IL 60546
- Harnden, John D., Jr. (M 1973), General Electric Co., P.O. Box 43, Schenectady, NY 12301
- Henson, Marion J. (M 1973), 6028 Hollyhurst Way, Sacramento, CA 95823
- Herrel, William W. (M 1973), 20 Amherst Place, Parlin, NJ 08859
- Higginbotham, Charles A., (M 1973), 14416 Pecan Drive, Rockville, MD 20853
- Hinerfeld, Joseph B. (M 1973), Secom Systems, P.O. Box 18851, Atlanta, GA 30326
- Hirschfeld, Robert A. (M 1973), Lithic Systems, Inc., P.O. Box 478, Saratoga, CA 95070
- Johns, Raymond E. (M 1973) Philips Broadcast Equipment Corp., 1 Philips Parkway, Montvale, NJ 07645
- Jones, Thomas F. (M 1973), University of South Carolina, Columbia SC 29208
- Keel, William P. (M 1973), 1214 Clancy Ave., Flint, MI 48503
- Keller, Edward F. (M 1973), 398 N. Edison St., Arlington, VA 22203
- Lindenblad, Nils E., (M 1974) 44 Shady Brook Lane, Princeton, NJ 08540
- Macklin, Frederick R. (M 1973), 506 Gerona Ave., Coral Gables, FL 33146
- Mann, James (M 1973), Mann Communications and Electronics, Inc. 28710 Canwood St., Agoura, CA 91301
- Meador, Myron E. (M 1973), 7330 Alto Caro Drive, Dallas, TX 75240
- Milliron, Robert R. (M 1973), 506 Diamond Spring Road, Denville, NJ 07834
- Morris, Lewis C., (M 1973), Microwave Associates Inc., South Avenue, Burlington, MA 01803
- Munns, Ernest F., (M 1973), Burndept Electronics (E.R.) Ltd., St. Fidelis Road, Erith, Kent, ENGLAND
- McMahon, Morgan E., (M 1973), 26451 Dunwood Road, Rolling Hills Estates, CA 90274
- Natole, Anthony (M 1973), 141-18 South Drive, Malba, NY 11357
- Quimby, Frederick C. (M 1973), Quimby's Radio Shop, Inc., 25 N. Harrison St., Easton, MD 21601
- Rykala, Theodore P. (M 1973), American Natural Gas System, 1 Woodward Ave., Detroit, MI 48226
- Salsberg, Arthur P. (M 1973), 15 Range Drive, Merrick, NY 11566
- Shaw, James D. (M 1973), City of Dallas — Equipment Svcs. Dept., 3920 Forest Ave. (Fair Park) Dallas, TX 75226
- Shepherd, Jean P., (M 1974) 230 W. 10th St., New York, NY 10014
- Sloop, W. B. (M 1973), 1204 Glen Eden Drive, Raleigh, NC 27612
- Stenger, William C., III (M 1973) 2624 Wertz Avenue, N.W., Canton, OH 44708
- Sweeny, Patrick (M 1973) E. F. Johnson Co., Land Mobile Div., 1123 Morena Blvd., San Diego, CA 92110
- Wright, Winter W. (M 1973), 141 Black Rock Road, Hampstead, MD 21074

## Address Changes

Twenty-five members changed their addresses last year. These names can be pasted into the 1973 Directory directly over the present listings.

- Boyle, Harry (M 1970), RCA Corp., 60 Evergreen Place, East Orange, NJ 07018
- Butt, Harvey R., (M 1971), 118 River Drive, Bay Ridge, Annapolis, MD 21403

- Bassett, Rex, W4QS, (M 1972), Box 4163, Fort Lauderdale, FL 33304
- Craig, James A., (M 1971), 4902 Justin Drive, N.W. Albuquerque, NM 87114
- Gravelly, Rear Admiral Samuel L., Jr., (M 1972, F 1972), QTRS NB-1, Naval Base, Newport, RI 02840.
- Finlay, William P., (M 1965), 157 Vincent Ave., East Providence, RI 02914
- Jaffe, D. Lawrence (M 1953, F 1959), 4750 South Ocean Blvd., Highland Beach, FL 33444.
- Jones, Harold A., (M 1971), Villa del Oro, 5774 N. Scottsdale Rd., Scottsdale, AZ 85251.
- Kanz, William J., (M 1970, F 1970), Box 753—King St. Orient, NY 11957
- Kaye, Robert K., (M 1972), 17 Battery Place, New York, NY 10004.
- Levergood, J. H., (M 1970), 4659 Dunover Circle N.E., Atlanta, GA 30340
- Long, F. Vinton, P.O. Box 3431, Sarasota, FL 33578
- Luethje, David S., (M 1970), 20921 Wolfe Way, Woodland Hills, CA 91364
- Miller, Kenneth M., (M 1970), 16904 Geo. Washington Dr., Rockville, MD 20853
- Minderman, Edward K. (M 1971), 10205 Lakeside Dr., Village, Oklahoma City, OK 73120
- McLean, James D., (M 1968), Patent Development Corp., 6399 Wilshire Blvd., Suite 300, Los Angeles, CA 90048
- Peck, Gordon V., W4RG (M 1961, F 1964), 521 N. Riverside Dr., Pompano Beach, FL 33062
- Quist, Andrew J., (M 1940, F 1957, L 1972), 717 Aviary Way, Homestead Run, Toms River, NJ 08753
- Richter, Allen R., (M 1969), 1281 Yacht Harbor Dr., Singer Island, FL 33404
- Rivkin, David H., (M 1970), 16 Windermere Terrace, Short Hills, NJ 07078
- Roberts, William W., (M 1952, F 1959) 372 Rue au Bois, B-1150, Brussels, BELGIUM
- Stockton, Charles (M 1970), 2321 Freetown Ct., Reston, VA 22091
- Swift, Frederick W., (M 1972), RFD, Lyme Center, NH 03769
- Turnbull, James C., (M 1969), Pye Business Comms. Ltd., Cromwell Road, Cambridge, ENGLAND CB1 3HE

## Errors and Omissions

The following members' names were omitted or incorrectly inserted in the 1973 Directory issue. Please add them to your Directory for a complete and [we hope!] correct list.

- Baker, Arthur J., (M 1972), 11158 Lovejoy St., Silver Spring, MD 20902
- Cohn, Hugo (M 1939, F 1953, L 1971), 905 West End Avenue, New York, NY 10025
- Piller, S. Edwin (M 1957), 80 Birchwood Park Drive, Syosset, NY 11791
- Sands, Leo G., (M 1960, F 1969), 250 East 73rd St., New York, NY 10021
- Sanford, Bernard E., (M 1971), 5411 Falls of Neuse Road, NC 27609
- Schermer, Arthur M., (M 1972), 30 East 9th St., New York, NY 10003



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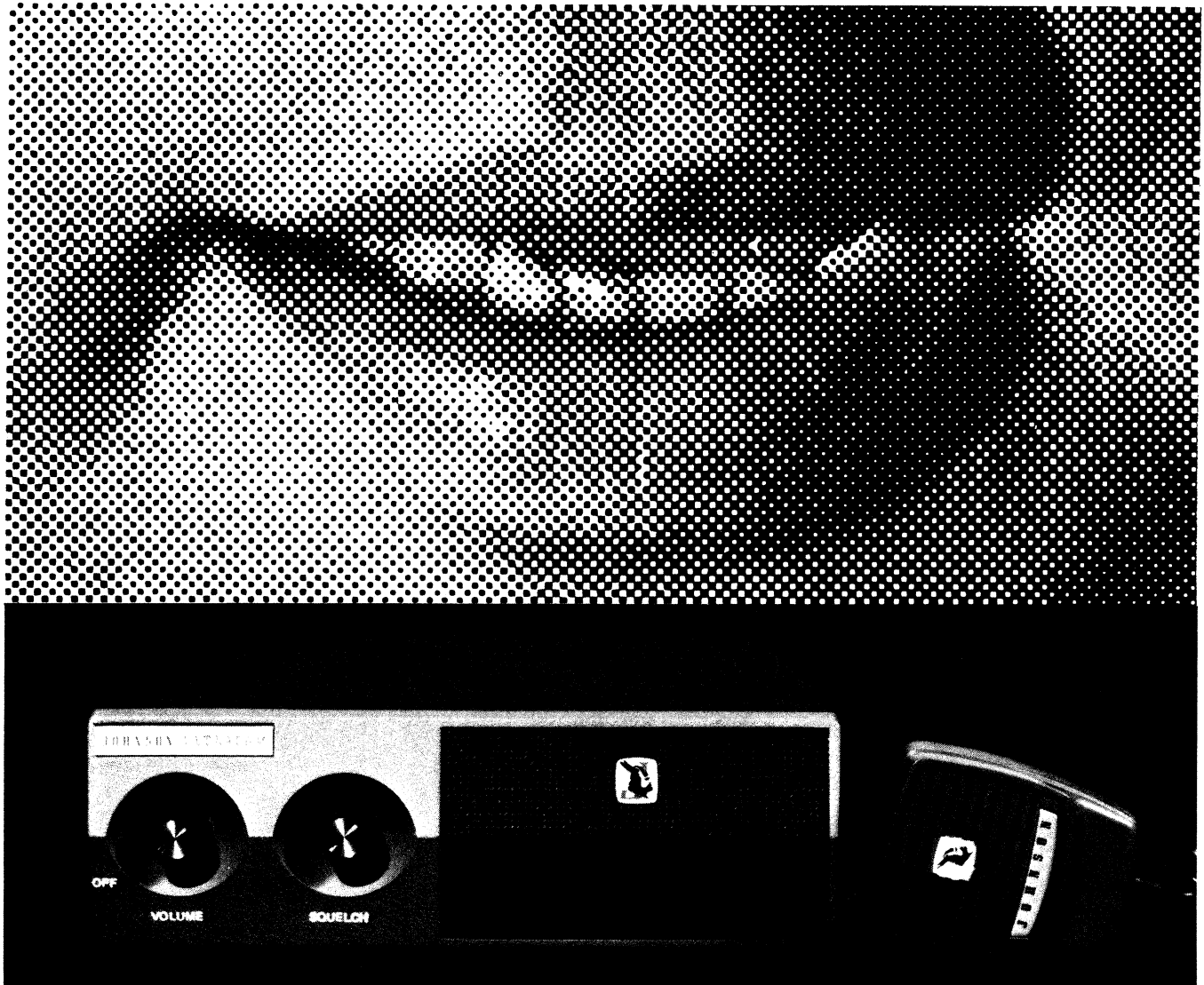
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