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Founded 1909

THE RADIO CLUB OF AMERICA, INC.

250 Park Avenue, Room 319, New York City

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

The Radio Club of America, Inc.

250 Park Avenue, Room 319, New York City 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.

1971
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The President's Message

During 1971 we have seen the Radio Club continue its effective expansion with roughly 100 new members added to the rolls since January 1. This follows two previous years, 1969 and 1970, in which we also enjoyed astounding growth, both in numbers of new members as well as in the high status of the vast majority of those voted into the Club. It has always been a privilege to be a member of the Radio Club of America, but in the past few years it has also been a sought after affiliation by many of the very top personalities in the field of communications, and of this fact all of us have a right to be proud.

We now have approximately 500 active members in good standing, and it is my plan to suggest to our Board of Directors that we attempt, by selective admission, to retain our active group at approximately the 500 level and limit our solicitation of new prospects to only the most highly qualified applicants in the electronics, communications and radio-TV industry. We do wish to further expand our global image as well as encourage activity and interest by our members in all the States. To this end we are attempting, with the active interest of key club members on the west coast and in the midwest and southeast areas, to establish a form of regional activity, which in turn could lead to changes in our By-Laws that would justify Regional V.P.s, or certainly Regional Directors. We have no firm plan as yet that could implement the above thought, but we are working on it. It is the wish of the Directors, the Editor and your President that this and subsequent issues of the **Proceedings** will be one of the best of the long history of publications by the Radio Club of America.

The major paper on the great genius of our age, Tesla, is based on an actual presentation to the Club during this past year. It has been widely received and appreciated and therefore we hope that documenting it will be of interest to present and future members. In addition, it is our plan to recognize such special grades of membership as "Fellow" and "Life" by listing the distinguished members so honored; which could make this issue important as an official record of the day.

A matter of serious interest to your Directors has been the close tolerances we have had to work with financially to get the many things accomplished that we feel could be important to our membership. It is frankly practically impossible to operate any type of organization that involves many mailings during the year, a program involving publications such as the **Proceedings,** the maintenance of an office with an Executive Secretary and Staff, on an average total net dues of approximately $7.50 per member. Consequently, I am submitting to the Board of Directors, for immediate consideration and action prior to January 1, 1972, a request that Club dues structure be changed to make it one rate of dues of $10.00 for a member, either Fellow or Regular Class, instead of the $6.00 dues for Regular and $10.00 for Fellow, as is now the case. The logic in this request should be obvious, as the cost of servicing a member, be he Fellow, Regular or Life is exactly the same for each one — and the added income from the upgrading the Regular Members dues to $10.00 to make it the same as for Fellows could make the difference in our operating effectively in the black. It is my belief that all members want the Radio Club to operate as any successful business, at break-even or better. That is also the objective of your current Board and Officers, and has been my personal objective since being elected President some three years ago. It is my hope that all members will recognize the validity of this program and support the move, if it is accepted by the Board of Directors.

In conjunction with the suggested upgrading of dues as of year 1972, it will also be my recommendation to the Board that the long obsolete $1.00 entrance fee be changed to $3.00 for all new applicants for membership as of 1972. The costs of establishing address plates, mailing records, etc. exceeds the $1.00 fee now charged with the consequent result that we basically lose money with each new member. This can and should be changed.

Another new feature will be the change from the long-time program of issuing annual membership cards to a system of permanent cards designating the rank and date of acceptance as a member. As of 1972 there will be gold cards for Life Members, stating date of membership, etc. silver cards for Fellows giving date of this initial membership and date of election as Fellow, and blue cards for new members and regular members, with date of initial membership. Possibly at some later date we will attempt to establish "seniority" members which would be revised annually. Such a situation would undoubtedly show "Pop" Amy as Seniority No. 1, a just honor.

From the above I believe you can all get my message — I am leading up to a situation that makes it a privilege and an honor to be a member of the Radio Club of America, and a status that will be appreciated by all of us who press to keep the Club the true "Who's Who" of the Communications and Scientific Electronics world.

Let us all get behind the program, and PUSH .....

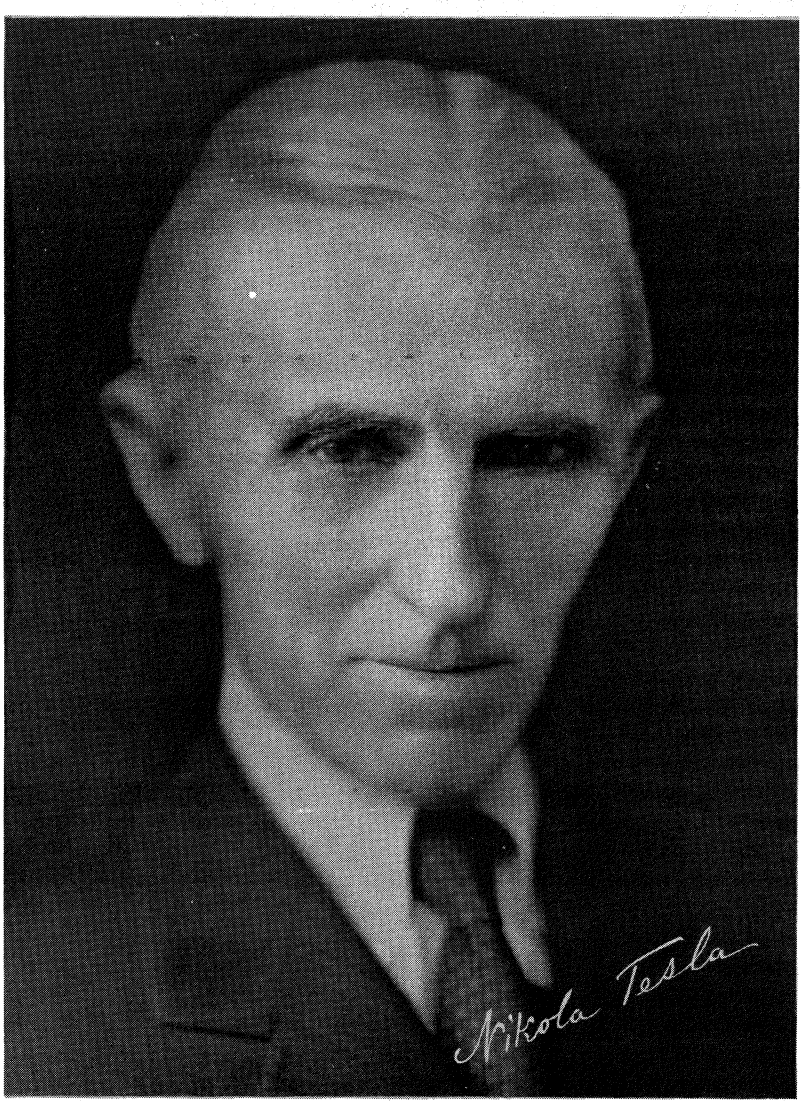
Fred Link

Election Notice

The terms of all officers and seven of the directors expire on December 31, 1971. The Nominating Committee has submitted its slate of candidates to the President. Ballots will be mailed to the membership on or before November 12. Ballots must be received at the Club office not later than December 2, 1971, to be considered. *It's your Club — Vote!*

Club Pins Available

Radio Club lapel pins and tie tacks are still available. To order yours, send $2.50 for the gold-on-black pin or tie tack if you are a member. If you are a Fellow, send $4.00 for the black-on-gold pin or tie tack to the Club office, specifying whether you want a pin or tie tack.



The author worked with Marconi, DeForest and Sarnoff, and has been associated with Shepard Labs, RCA, Monroe Calculating Machines and Philco. He joined the U. S. Naval Reserve in 1932 and was on active duty during World War II. He founded and served as editor of BROADCAST NEWS for RCA. He is the founder and honorary president of the Electric Railroaders Association, and chairman of the board of GREEN LINE STEAMERS (SS Delta Queen).

NIKOLA TESLA, WORLD'S GREATEST ENGINEER

By
Commander E. J. Quinby, USN (Ret.)

Ask any electrical engineering student today to tell you something about Tesla, and you are likely to get a blank stare. Or the counter-question: "Who **was** Tesla?" It seem preposterous that our educators should have ignored entirely the founder of our a.c. age, but such is the fact. Something should be done about our technical education system.

Born July 9, 1856 in the village of Smiljan in what is now Yugoslavia, Tesla rose from relative obscurity to a top position in the scientific world. He became a millionaire at 32 through his important inventions, only to fade later into obscurity, and died penniless.

His father was a clergyman. His mother, though she never learned to read and write, was known in the community as an inventor of domestic labor-saving devices, and it is to her that Tesla attributed much of his inventive genius. The young Tesla, opposing his father's urging to study for the ministry, insisted on a career in engineering. His mother encouraged him. He attended the polytechnic school at Graz, specializing in physics and mathematics, and continued his education at the University of Prague. There he took a course in foreign languages, so that he could read the foreign technical literature. He became proficient in English, French and Italian, in addition to the German with which he was already familiar, and of course, his native Serbian.

Finishing at Prague in 1880, he took a post-graduate course in Budapest, where he debated the merits of alternating current with his professors. He then went to work for a Paris telephone company, where he acquired considerable experience with d.c. dynamos and motors. While there he invented regulating and control devices to protect the rotating machines he serviced.

Electrical Industry Was Limited

In those early days, direct current was universally acknowledged to be the only practical medium for generating, transmitting and applying electricity for heat, light or power. But d.c. resistance losses were so great that a power plant was needed for every square mile served. Early incandescent lamps, glowing none too bright on 110 volts even close to

the power plant, became pitifully dim on the power that dribbled from the lines less than a mile away. And everyone believed that motors could run only on d.c. An alternating current motor was considered an impossibility.

This was the picture when, in 1884, young Tesla stepped off a ship in New York, his head full of ideas, and four cents in his pocket. His experience had convinced him that the commutator in direct current motors and dynamos was an unnecessary complication, causing endless troubles. He realized that the "d.c. generator" actually produced a.c., which was rectified by the commutator into a series of waves, all flowing in the same direction through the external circuit.

Then, to get this d.c. to produce rotary motion in a motor, the process had to be reversed. The armature of each electric motor was equipped with a rotating switch (commutator) that changed the polarity of its magnetic poles just at the right instant as it revolved, to supply a.c. to the motor.

The Inspiration

To Tesla, this was sheer nonsense. It seemed logical to eliminate the commutator at both generator and motor, and use a.c. through the whole system. But no one had ever built a motor that could operate on alternating current, and Tesla struggled mentally with the problem. And one day in February, 1882, while strolling with a classmate named Szigetti in a Budapest park, he suddenly blurted out: "I've got it!" Now watch me reverse it!" At that moment he had visualized the rotating magnetic field, which would revolutionize the whole electrical industry. He saw the magnetic pull racing around the stationary field (stator) of his motor while the armature (rotor), attracted by the moving field, chased around after it faster and faster until it was revolving at the same rate. He would need no switching to the rotating element — no commutator!

Subsequently he worked the whole alternating current electrical system out in his mind — including alternators, step-up and step-down transformers for economical transmission and delivery of electric power, and a.c. motors to supply mechanical power. Impressed by the wealth of available water power going to waste around the world, he visualized the harnessing of this great supply with hydro-electric plants capable of distributing the power to where it was needed. He startled fellow-students in Budapest by announcing: "Some day I will harness Niagara Falls."

Discouraged by Edison

The opportunity and fortune Tesla sought in the promised land did not come easy. When he met Edison, then actively engaged in developing a market for his incandescent lamp through his pioneer Pearl Street plant in New York, Tesla launched with youthful enthusiasm into a description of his alternating current system. "You are wasting your time on that theory," the great man told him, dismissing the idea promptly and finally.

For a year the tall, gaunt Yugoslav struggled to keep from starving in this strange land. At one point he dug ditches to make a living. But the foreman of the Western Union ditch-digging project on which he was working listened to the visionary descriptions of new electrical systems that Tesla related during lunch hours, and introduced him to a company executive named A. K. Brown. Fascinated by Tesla's vivid plans, Brown and an associate decided to take a flyer. They put up a limited amount of money, with which Tesla set up an experimental laboratory at 33-35 South Fifth Avenue (now West Broadway). There Tesla set up a complete demonstration of his system, including generator, transformers, transmission line, motors and lights. He worked tirelessly, and without drawings; the plans for every detail were indelibly etched in his mind. He even included two-phase and three-phase systems.

Professor W. A. Anthony of Cornell University examined the new a.c. system, and promptly announced that Tesla's synchronous motor was equal in efficiency to the best d.c. motors.

Alternating Current Arrives

Tesla then attempted to patent his system under a single comprehensive patent covering all its components. The Patent Office would not approve the all-in-one application, insisting on separate applications for each important idea. Tesla's applications, filed in November and December of 1887, resulted in the granting of seven U.S. patents in the next six months. In April, 1888, he filed for four more patents, covering his polyphase system. These too were promptly granted, as were 18 more U.S. patents later in the year. These were followed by numerous European patents. Such an avalanche of patents, so promptly issued, was without precedent, but so completely novel were the ideas — so completely absent was any element of interference or "anticipation" — that the patents were issued without a single challenge.

Meanwhile Tesla staged a spectacular lecture and demonstration of his a.c. system — single-phase and polyphase — at a meeting of the AIEE (now the IEEE) in New York. The engineers of the world were made aware that the limitations on electric power transmission by wire had been removed, opening the door to tremendous expansion.

But who would adopt this obviously better system? Certainly not the established Edison-General Electric organization — it would have made their whole investment obsolete. Apparently Tesla was stuck — with no market, no customer for what he had to offer.

It was at this moment that George Westinghouse walked into Tesla's laboratory and introduced himself. Tesla was then 32 years old, Westinghouse 42. Both were capable inventors, accomplished engineers and electrical enthusiasts. Westinghouse listened to Tesla's explanations, watched his demonstration, and quickly made up his mind.

"I will give you one million dollars cash for your alternating current patents, plus royalties," offered Westinghouse.

"Make that royalty one dollar per horsepower, and it's a deal," replied Tesla, without apparent excitement.
As simply as that, the two men arranged the historic deal and shook hands on it.

Tesla had arrived! But he was not a man to forget those who had placed their faith in his ideas, and promptly signed over half his million-dollar fee to Brown and his associate, who had financed his laboratory. Although the backers of Westinghouse later forced him to get a release from Tesla on the dollar-per-horsepower part of the agreement, such was the friendship that had developed between the two men that an amicable settlement was quickly reached. Tesla relinquished the royalties that would have supported him and his research efforts for the rest of his life.

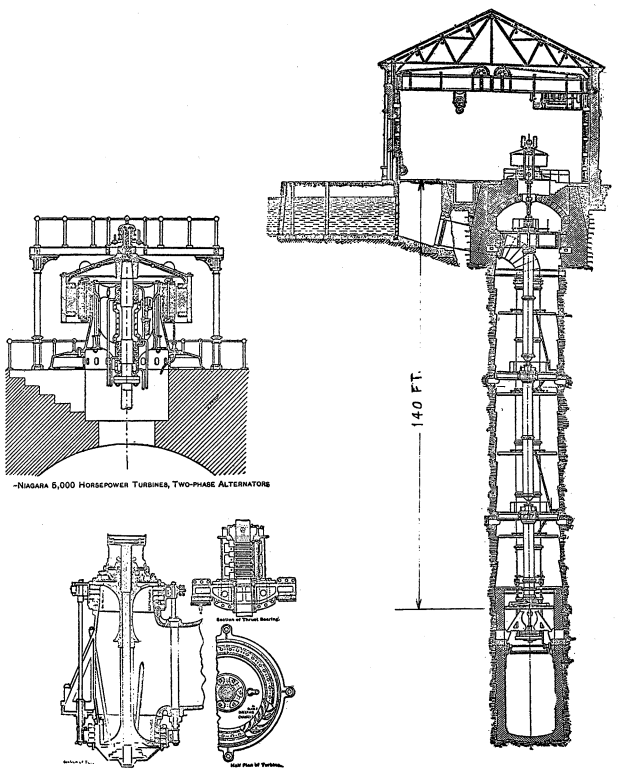
The phenomenal success of the Westinghouse a.c. systems across the nation made it clear to General Electric engineers that they would have to get a license from Westinghouse

if they were to keep up in the rapidly expanding electrical industry. The license — negotiated at a handsome fee — was a feather in Tesla's cap; he distinctly recalled Edison's statement that there was no future in alternating current and that experimenting with it would be a waste of time.

A Dream Realized

In 1890, the International Niagara Commission began trying to determine the best way of using the power of Niagara Falls to generate electricity. The scientist Lord Kelvin was appointed chairman of the Commission — and he immediately announced that a d.c. system would obviously be best! It was not easy to challenge this world-famous authority, but he eventually came to realize that if power were to be transmitted even the 26 miles to Buffalo, a.c. would be necessary. So it was finally decided to use Tesla's system and generate a.c. with massive water turbines. Bids were invited by the newly formed Cataract Construction Co. in 1893. Westinghouse won the contract for the ten 5,000-HP hydro-electric generators, and General Electric the contract for the transmission system. The whole system — the line, step-up and step-down transformers all followed Tesla's two-phase design. He designed the big alternators with external revolving fields and internal stationary armatures, to minimize the weight of the moving members.

This historic project created a sensation, for nothing of this magnitude had been attempted at the time. The ten big 2,250-volt alternators, revolving at 250 rpm and delivering 1,775 amperes each, produced an output of 50,000 HP or 37,000 kW, 25 hertz, two-phase. The rotors were 10 feet in diameter and 14 feet long (14 feet high in these vertical generators) and weighed 34 tons each. The stationary members weighed 50 tons each. The voltage was stepped up to 22,000 for transmission.



One of the 5,000 h.p. Niagara Falls units, with detail at left. Upper drawing shows the hollow drive shaft that goes through the stationary armature to rotate the field, which hangs outside and around the armature.

Remote Radio Control

Tesla's pioneering in the realm of radio ("wireless" as it was then called) went further than Morse code communication. In 1898 he staged a spectacular demonstration of remote control without wires at the original Madison Square Garden, New York City. The first annual Electrical Exhibition was then in progress, and in the center of the vast arena where Barnum & Bailey's circus usually performed he had a large tank constructed and filled with water. Afloat on this small lake he had a 3-foot-long iron-hulled boat, with its mast supporting an antenna. Inside the hull was a radio receiver and an assortment of electric motors, driven by storage battery, to perform various "ship" functions.

From the opposite end of the auditorium, Tesla put the vessel through a variety of manouvres, including sailing forward, steering left and right, stopping, reversing, and lighting the lights in its rigging in response to audience requests. The impressive demonstration of course "stole the show" and made the front page of the daily newspapers. But how many dreamed that one day, using these radio-remote-servo-control principles, we would land some of our citizens on the moon?

Mathematical Wizardry

Tesla's mathematical genius stood him in good stead in the design of the items of a.c. equipment that Westinghouse and G-E undertook to manufacture. (In his early student days, he solved complex problems in his head, without pencil and paper). His teachers suspected him of cheating, and put him to conclusive tests. Young Tesla, it developed, had memorized whole logarithmic tables!) The now established frequency of 60 cycles per second (hertz or Hz) stems from Tesla's mental calculations, which convinced him that it was the most practical frequency for commercial use. At higher frequencies, a.c. motors would become inefficient; at lower frequencies they would require too much iron. Lights would also flicker at low frequencies.

Though the original Niagara Falls plant was designed for 25 Hz to accommodate the limitations of the early Westinghouse turbine generators, subsequent expansion included conversion to 60 Hz. Today this Niagara power is transmitted all the way to New York City, 360 miles away, and at times is fed over the Northeast power grid for much greater distances. (When Tesla arrived in New York, the limit for efficient power transmission was less than a mile!)

High Frequency Pioneering

During his investigations into the unknown realms of high voltage and high frequency, Tesla adopted a most sensible practice. When handling high-voltage apparatus, he always kept one hand in his pocket. He insisted that all his laboratory assistants take this precaution, and to this day it is always employed by sensible experimenters around potentially dangerous equipment.

Tesla's explorations in higher frequencies and in the field of incredibly high voltages paved the way for modern electronics, although the word had not yet even been coined.

With his unique high-frequency transformers (Tesla coils) he showed that he could actually pass millions of volts harmlessly through his body to glow-tube lamps held in his bare hands. They would light up to full brilliancy from the high-frequency, high-voltage currents. In those early days he was actually demonstrating neon-tube and fluorescent tube lighting!

Tesla's experiments up and down the frequency scale sometimes led him into unexplored regions. Studying slow mechanical or physical vibrations, he caused a virtual earthquake in the vicinity of his new laboratory on Houston St. His mechanical oscillator, approaching the natural period of the building itself, threatened to tumble the old structure. Furnishings in the police station over a block away began to dance around mysteriously as Tesla confirmed his mathematical theories of resonance, vibration and "natural periods."

World's Most Powerful Transmitter

Investigations of high-voltage and high-frequency electrical transmission led Tesla to construct and operate the world's most powerful radio transmitter, on a mountain near Colorado Springs. Around the base of a 200-foot mast, he built a 75-foot diameter air-core transformer. The primary was only a few turns of wire. The secondary within it was 100 turns, 10 feet in diameter. Using power from a generating station several miles away, Tesla created the first man-made lightning. Deafening bolts 100 feet long leapt from the 3-foot copper ball at the top of this mast. The thunder was heard as far away as the horizon. He was using voltages of the order of 100 million — a feat not to be equalled for half-a-century.

Tesla burned out the power plant generator with his first experiment, but repairing it, continued his experiments until he was able to transmit power without wires for a distance of 26 miles. At that distance he was able to light a bank of 200 incandescent lamps — a total of 10 kilowatts. Fritz Lowenstein, later to become famous for his own radio patents, witnessed this spectacular accomplishment, as Tesla's assistant on the project.

In 1899, Tesla had somehow spent the last of the money he got from Westinghouse for his a.c. patents. Colonel John Jacob Astor came to his financial rescue, and put up the necessary $30,000 for the Colorado Springs experiments. Now this money was also gone, and Tesla returned to New York.

Enter J. P. Morgan

In New York, Tesla was prevailed upon by his friend Robert Underwood Johnson, editor of **Century** magazine, to write a feature story describing his accomplishments at Colorado Springs. But the story Tesla turned out proved to be an involved discourse on the subject of philosophy and "the mechanical process of humanity." Although of the highest literary quality, the treatise said little about the powerful transmitter at Colorado Springs. Johnson had to return the manuscript three times before getting some coverage of the subject he had requested.

In the end, the article was published under the title, "The Problem of Increasing Human Energy." It created a sensation when it appeared in print. One of the readers who was deeply impressed was John Pierpont Morgan, who had financed the General Electric Co. in its pioneer d.c. days, and more recently its part of the Niagara Falls project. Morgan was fascinated by the genius of Nikola Tesla, by his spectacular accomplishments and his winning personality. Tesla soon became a regular guest at the Morgan home. Impeccably dressed, always the polished gentleman with European manners and cultured speech in several languages, Tesla became a favorite of New York and Newport society. Many prominent matrons regarded him as a "good catch" for their daughters, but Tesla insisted that there was no room in his life for women and romance — that they would interfere with his research efforts.

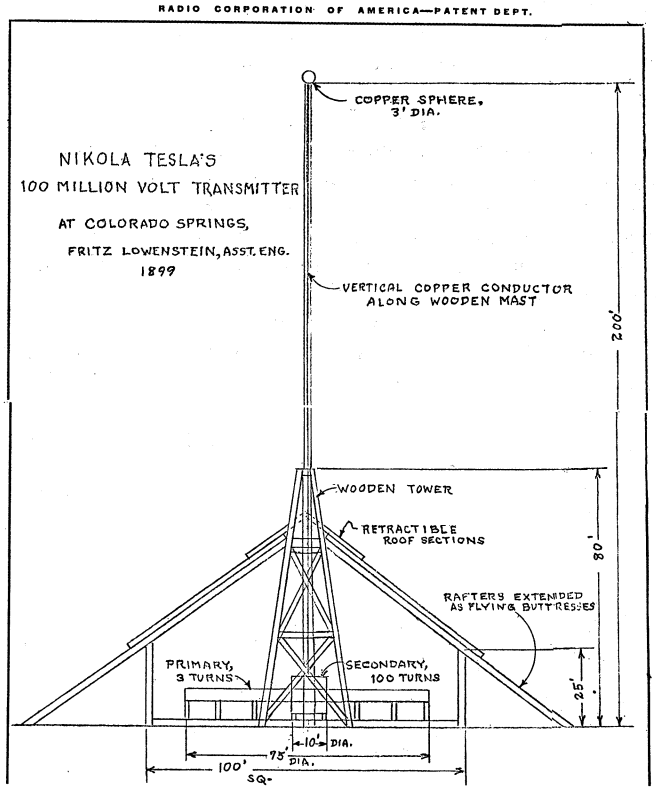
Historians differ on what motivated Morgan to finance Tesla's next big project. Some believe that he was genuinely interested in the wireless transmission of power. Others argue that — in the light of subsequent developments — it seems obvious that Morgan's interest was in getting control of Tesla and his achievements to protect the Morgan investments in the electrical industry.

Finding that Tesla was broke again, Morgan agreed to underwrite Tesla's project of transmitting electric power without wires. In 1904, Tesla acknowledged in **Electrical World and Engineer:** "For a large part of the work I have done so far I am indebted to the noble generosity of Mr. J. Pierpont Morgan."

From this alliance sprouted the fantastic "world-wide-wireless tower on Long Island.

World Wide Wireless

The strange structure that slowly rose near Wardenclyffe, in the hilly portion of Long Island, mystified all observers. Resembling nothing so much as a huge mushroom, except that it was not solid, it had a lattice-work skeleton, broad at the base and tapering toward its 200-foot top. There it was capped by a 100-foot diameter hemisphere. The structure was



The 100-million-volt transmitter, power from which lighted 200 50-watt lamps at a distance of 26 miles.

made of stout wooden members joined by copper gussets bolted to the wood with sturdy bronze bolts. The hemispherical top was draped over its upper surface with copper mesh. There was no ferrous metal in the entire structure.

The famous architect Stanford White became so interested in the project that he did the design work without charge, assigning one of his best designers, W. D. Crow, to the task.

Tesla commuted daily to the construction from his quarters in the old Waldorf-Astoria Hotel on 34th St., riding the streetcars to the East 34th St. ferry, then the paddlewheel steam ferry to Long Island City and the Long Island Railroad to Shoreham. The railroad's dining service prepared special meals for him so that his supervision of the project would not be interrupted.

When the 100-foot square brick power plant was completed near the base of the big tower, Tesla began moving his Houston St. laboratory into the structure. Meanwhile, annoying delays were encountered in the manufacture of the radio-frequency generators and their driving motors. Several glassblowers were busy fashioning special tubes, the design of which still remains a mystery.

The Prophet Tells of the Future

Meanwhile, Tesla issued a descriptive brochure that revealed his far-reaching insight into the future of the great industry that at that time (1904) was limited to dot-and-dash telegraphy. That document has persuaded many that the man was actually clairvoyant. He announced that the World Wide Wireless system was being prepared to provide a variety of facilities, including:

Telegraph Communication, Telephone Communication, News Broadcasting, Stock Market Quotations, Aids to Navigation, Entertainment and Music Broadcasting, Accurate Time Service, Facsimile, Telephoto and Teleprinter services.

Tesla was describing the Radio City of the future, which he actually lived to see come into existence!

Morgan's Support Ends

In **Electrical World and Engineer** of March, 1904, Tesla revealed that the Canadian Niagara Power Co. had offered him inducements to locate his wireless power transmission project at their plant, and that he proposed to employ those facilities to distribute 10,000 horsepower at a potential of 10 million volts.

The Niagara project never materialized, but may have had some influence on the fate of the spectacular Long Island project. For reasons that have never come to light, J. P. Morgan had a change of heart, and Tesla's financial fountain suddenly went dry. At first Tesla refused to believe that Morgan would not arrange for the nearly finished job's completion, but Morgan's withdrawal was abrupt and final. Historians of the industry wonder why. Did Morgan lose patience? Did engineers of high repute convince him that Tesla's visions, so openly revealed in the brochure, were nonsense, and that he was wasting his money on a hopeless dream? Did he suspect that Tesla was diverting time and money to the Niagara project? The facts will probably never be known.

Brainless Desecration

During World War I much senseless desecration was perpetrated in the name of national defense. For some strange reason (or lack of reason) it was decided that Tesla's spectacular tower at Wardenclyffe, Long Island jeopardized the

Not all the facts on the mysterious Long Island tower were ever known. Some believe that it was intended to transmit at low frequencies, "shaking the earth" to send signals to distances then believed impossible. Tesla foresaw a complete modern type of service, but never stated how large an area he intended to cover. But, he called it the World Wide Wireless System!

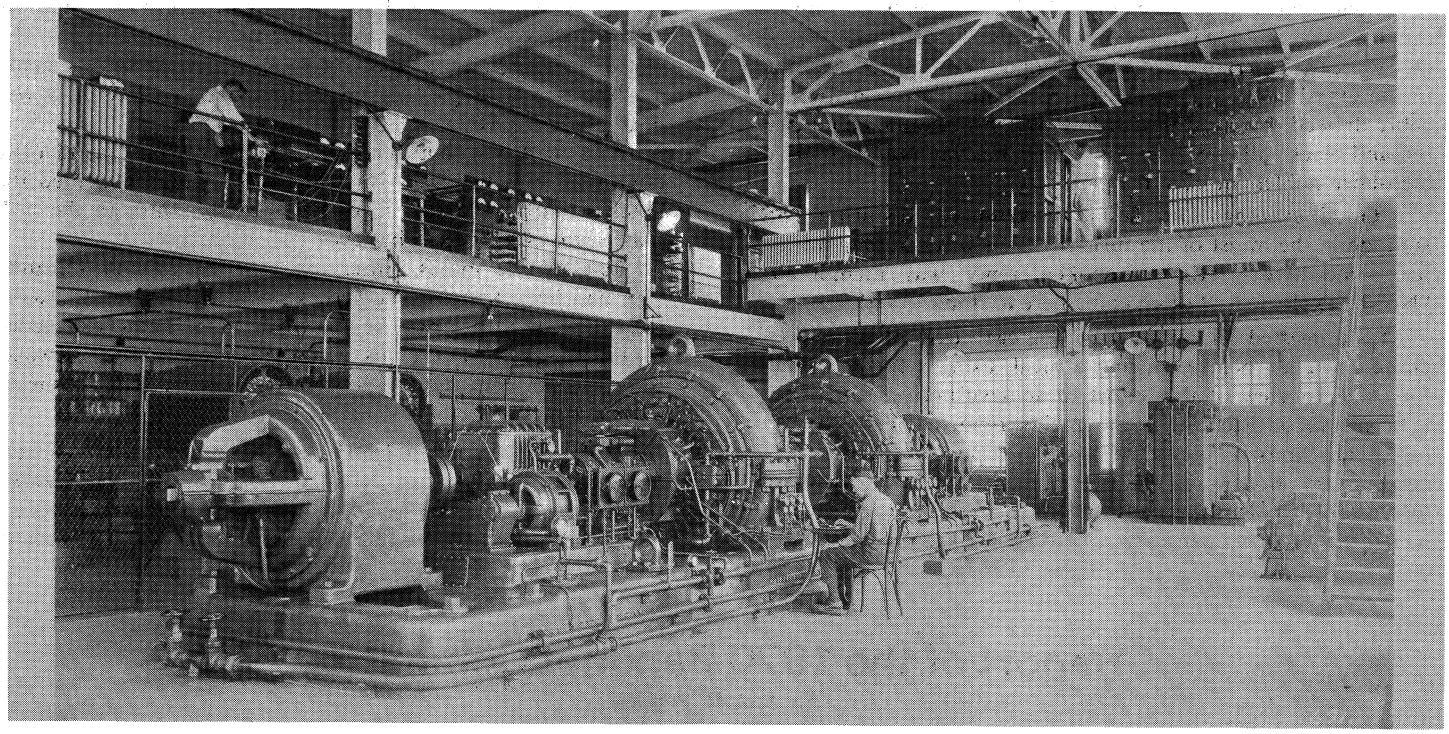
safety of the United States, and must be destroyed. After vain attempts to topple the lofty structure by attaching cables to it and trying to drag it off balance, it was finally capsized by dynamiting its foundations. Even then, the tower did not collapse nor disintegrate. It simply lay intact on its side, and was finally dismantled piece by piece.

But why did this structure have to be dispensed with? Many taller objects closer to New York City — including the Ramapo Mountains — were allowed to remain intact!

The Radio-Frequency Alternator

As early as 1890 Tesla built high-frequency a.c. generators. One, which had 384 poles, produced a 10-kHz output. He later produced frequencies as high as 20 kHz. More than a decade was to pass before Reginald Fessenden developed his r.f. alternator, which had an output of 50 kW. This machine was scaled up to 200 kW by General Electric, and put on the market as the Alexanderson alternator, named after the man who had supervised the job, and who had constructed some of Fessenden's earlier alternators.

When it appeared that British interests (already in control of most of the world's cables) were about to acquire the patents for this machine, the Radio Corporation of America was organized, at the urgent suggestion of the United States Navy. The new company was formed in 1919, around the Marconi Wireless Telegraph Co. of America, and the powerful but inefficient Marconi spark transmitters were replaced by the highly successful r.f. alternators. The first one was installed in New Brunswick, N.J. at station WII. It produced a 21.8 kHz signal at 200 kW, and handled commercial business previously the exclusive domain of the cables. This was



"The Author as a Young Man." E. J. Quinby watches over the great 200-kW alternators at WII, New Brunswick, N. J.

the first continuously reliable trans-Atlantic radio service.*

The writer, as the most junior of the junior engineers on the project, struggled like the rest to keep the first machine running until the next was ready to provide relief. So well did these alternators perform that a whole battery of them was ordered, to be installed at Radio Central, Rocky Point, L.I., almost within the former shadow of Tesla's tower.

Thus Nikola Tesla's World Wide Wireless dream was fulfilled some three decades after he initiated the project and right where he started it, using the type of transmitter he devised.

Radar and Turbines

Tesla continued active research in many fields. In 1917 he suggested that distant objects could be detected by sending shortwave impulses to them and picking up the reflected impulses on a fluorescent screen. (If that doesn't describe radar, what does?) He described cosmic rays 20 years before other scientists discovered their existence.

At various times up to 1929, he devoted his attention to a "bucketless" high-speed turbine for steam or gas. Friction between the increasingly irascible Tesla and some of the engineers and assistants cooperating with him on tests at the Edison Waterside power plant and in the Allis-Chalmers factory did not help his cause, but many respected engineers today agree that we have not heard the last of the Tesla turbines with the smooth rotor discs.

As the years passed, less and less was heard from him. Occasionally some reporter or feature writer would look him up and manage to get an interview. His prophecies became increasingly strange and involved, inclined toward the abstract and delving into the occult. He never acquired the habit of writing notes, always claiming (and proving) that he was able to retain complete detailed data on all his researches and experiments in his mind. He said that he intended to live to 150, and upon reaching age 100, would write his memoirs, which would include a detailed record of all the data he had compiled during his researches and experiments. At his death — during World War II — the contents of his safe were impounded by military authorities, and nothing has been heard as to the contents of the records — if any — it might have contained.

One of the peculiar inconsistencies of Tesla's character was revealed when two high honors were offered him, and he rejected the one but accepted the other. In 1912 it was announced that Nikola Tesla and Thomas A. Edison had been chosen to share the Nobel Prize, including the $40,000 honorarium. Tesla could well have used the $20,000 at the time. Nevertheless, he flatly refused to share an honor with Edison. However, when in 1917 the AIEE's Edison Medal — founded by anonymous friends of Edison — was awarded to Tesla, he was persuaded to accept it, after first refusing.

The Esteemed Eccentric

Tesla's natural demeanor was that of the aristocrat. With the passage of time and the depletion of his resources, he sank into a condition of genteel poverty. Continuing to live in the best hotels, his credit would become exhausted and he would be forced to seek other quarters. Finally, moving into the newly opened New Yorker, he found his problems solved. Some of the organizations for which he had made millions arranged with the hotel management to take care of the aging genius.

***Dr. E. Stuart Davis, of the National Telegraph Office (Museum) in Union, N.J., Happily reports that one of these giant alternators has been preserved in the Smithsonian Institute, where it stands as a monument to Tesla's pioneering, Fessenden's perseverance, Alexanderson's development and Sarnoff's leadership. This one originally served at Trans-Atlantic Transmitter Station WSO at Marion, Mass.**

Having once met Tesla through the mutual friendship of the intrepid Hugo Gernsback (possibly Tesla's last friend) this writer later recognized the distinguished pioneer strolling in the grand concourse of the Pennsylvania Terminal. Impeccably dressed, his head bowed low over his pristine collar and red-and-black silk necktie, his whole bearing was that of a high-born nobleman from the past.

"Good evening, Dr. Tesla," I ventured, disturbing his solitude in the midst of the turmoil. "Are you catching a train for somewhere?" His soft-spoken reply was memorable, "No" he explained, "I often come here to think."

Tesla insisted on carefully wiping each item of silverware, china and glass before starting a meal, using a fresh napkin for each. In view of this effort to achieve perfect sanitation, it seems inconsistent that the maids reported Tesla's room to be an "unholy mess." It wasn't Tesla's untidiness they complained about — it was the pigeons! When he was not feeding them out in the park, he fed them in his room, where he left the window open so they could come and go.

The gold-plated telephone beside his bed, over which he enjoyed a universal frank to talk to anyone anywhere in the world without charge, was the roost of his favorite pigeon, a white one with grey-tipped wings. "When she dies, I will die," predicted Tesla.

And so it was that one day in January 1943, his favorite dove paid him her last visit. "She was dying," lamented the lonely, unhappy Tesla. "I got her message, through the brilliant beam of light from her eyes."

One of the maids, observing that the "Don't Disturb" sign had been hanging on Tesla's doorknob for an unusually long time, used her pass key to investigate. Tesla had passed to his reward, leaving his gaunt 87-year-old frame peacefully in bed. She fed the mourning pigeons, gently ushered them out, and closed the window.

Author's Note: I am indebted to the late Hugo Gernsback, friend and confidant of Nikola Tesla; to **Prodigal Genius,** the biography of Tesla by John J. O'Neill; to the **Proceedings of the AIEE,** and various publications for help and information.

Report of the 1970 Banquet Committee

By Jack R. Poppele

The 61st anniversary banquet of The Radio Club of America was held at the Statler-Hilton Hotel, Penn Plaza, in New York City on Friday, December 10, 1970.

To many old timers who recall the early days of radio — the Statler-Hilton was formerly the Hotel Pennsylvania, made famous by Vincent Lopez. The Statler-Hilton has not faded with age, but provided a splendid dinner for the guests of the club, some of whom remembered that this was also the locale for the early IRE conventions and banquets.

The Radio Club broke tradition in 1969 when ladies were first invited as guests at the annual dinner.

The banquet committee was faced with a double jeopardy in 1970 when both railroads and taxi cabs were on strike, but in spite of that 150 of our anticipated attendance of 175 club members and guests either walked or bicycled to the dinner.

Bill Lear, a director of the Radio Club, was our principal speaker. He carried everyone into the future with his presentation: "DAMN THE SMOG — FULL STEAM AHEAD". Bill Lear is credited with many firsts in both radio and aviation, and his fertile mind is now at work on methods to overcome pollution.

The election of new Fellows was announced and certificates were presented at the banquet to the new Fellows that were present. Among them was William H. Forster, who came to the banquet all the way from Belgium. The Fellows elected in 1970 are listed below:

Frank P. Barnes, Senior Vice President, ITT
William H. Forster, Technical Director, ITT Europe
William Grenfell, Rules and Legal Branch, FCC
Andrew Inglis, Vice President, RCA Corporation
C. M. Jansky, Jr., Consultant
William J. Kanz, Deputy Chief Inspector, NYC Police Dept.
Rhett McMillan, Jr., Executive Secretary, APCO
Eugene Rietzke, Founder of Capital Radio Engineering Institute
Harold F. Schwede, Schlumberger Co.
Julian Sienkiewicz, Chief Electronics Editor, Davis Publications
Waldo A. Shipman (Deceased) Columbia Gas Service Corp.

The excitement of the evening was enhanced by the drawing of prizes which were donated by organizations who have a deep respect for The Radio Club of America. The club acknowledges its sincere gratitude to the following organizations:

Aerotron Inc.
Chilton Book Company
The Hallicrafters Company
Hayden Book Company
E. F. Johnson Company
Kaar Electronics Corp. (Member Canadian Marconi Co. Group)
Michael Clark (The Plessey Company, Ltd.)
Motorola, Inc.
Pye Telecommunications, Ltd.
RCA Corporation
Tele-Measurements Inc. (Jack R. Poppele)

A special treat of "Supreme Coppertone" was extended to the ladies, thanks to A. Plough, President of Plough, Inc. makers of Coppertone and St. Joseph Aspirin.

In spite of rising costs, the price of the dinner was held to $10.00 per person, supported through the sale of tickets for the prizes. The banquet committee is indeed grateful for the support of those members who gave of their time to make our 61st one of its most successful and memorable events. Events were recorded for posterity by Jerry B. Minter, past President of Radio Club of America.

Banquet Committee	*Hostesses*
Jack R. Poppele, Chairman	Pauline Poppele
David Talley	Lorraine Poppele
Julian Sienkiewicz	June Poppele
Leo G. Sands	Joanne Link Sotres
J. R. Sims	Judy Durr
	Martha Frana

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RADIO CLUB MEETS AT NYPD

There was a big turnout for the special Radio Club meeting that was held at New York Police Department Headquarters at 240 Centre Street on June 16.

Instead of the usual presentation of a paper, the members and their guests were taken on a tour of the NYPD communications center with explanations given by Deputy Chief Inspector William Kanz and Inspector Stephen Walsh, both of whom are Fellows of The Radio Club. This type of meeting turned out to be most interesting and should be considered again in the future.

Messrs. Kanz and Walsh explained how NYPD dispatches its patrol cars in response to calls for emergency assistance from the public. The sequence of events is:

1. A person seeking assistance dials 911 on a telephone.
2. The call terminates at one of the ACD police emergency stations in the Communications Center at Police Headquarters in Manhattan.
3. The ACD (Automatic Call Distributor) which continuously polls the police emergency operators, finds one that is not busy and gives him the incoming emergency call.
4. A light glows at the operator position. The color of the light indicates the borough from which the call is coming.
5. The operator responds to the call and takes the information (Four stations have Spanish-speaking operators.)
6. The operator codes the information and sends it into the computer terminal.
7. The computer automatically directs the message to the police radio dispatcher of the division in which the call originates, the central complaint desk and the notification-history desk. When an ambulance is required, a message is also sent to the ambulance dispatcher.
8. The basic incident information flashes on a screen at the radio dispatcher position — one line per incident. (Ten incidents can be displayed at one time.) The display can be scrolled up or down so the dispatcher can pick the incident of highest priority.
9. The dispatcher signals the radio car that has been given the highest priority by the computer.
10. The recorder at the selected police car takes the message and the patrolman drives to the scene.
11. The computer adjusts its vehicle-availability table, assigning the called car to the job, and then moving the next car up for top priority.
12. If the assigned car doesn't call headquarters after a prescribed time, the computer generates an overdue message to the radio dispatcher, who then summons the car via radio.

The staff of the NYPD Communications Division is larger than the entire police force of many large cities. Of the 658 members of the staff, 459 are police officers, 126 are trainees and 73 are civilians, including 35 radio repairmen.

There are seven borough radio rooms: Brooklyn North, Brooklyn South, Bronx, Queens, Manhattan North and Citywide, from which an average of 5500 radio calls are made daily. A borough radio room contains three division consoles, each with its own radio channel. There is also a master console that has access to all three division channels, plus the Safety Emergency and Citywide channels.

What Kanz and Walsh told and showed the members cannot be explained adequately here. You've got to see it to believe it.!

NYPD Communications History

1845. All precinct station houses were connected direct to central headquarters by Morse telegraph circuits.

1858. Dial telegraphy was added to enable police officers who were not familiar with the Morse code to send messages by spelling out words on a pushbutton console.

1880. Telephones were first installed in precinct station houses.

1885. The first signal boxes were installed in the Bronx. This was the first direct means of communication between a patrolman and his station house. Patrolmen were required to make periodic "rings" at intervals determined by precinct commanders.

1892. Switchboards and extensive telephone facilities were installed in various police buildings.

1908. Radiotelegraphy was used for ship-to-shore communication between the Harbor Precinct launch "Patrol" and a land base.

1914. Call lights were installed on top of signal call box poles. The desired light was activated by the precinct desk officer to alert the patrolman on duty. The public could also summon police assistance by pushing a button on the call box to light the light.

1914. Telephone booth posts were established. Two officers were stationed at the booth. One received telephone calls for assistance. The other, a member of the Bicycle Squad, was dispatched to the scene.

1917. Radio was first installed in a police vehicle.

1920. Call letters KUVS were assigned to the New York Police Department, when, on June 11, the first police service station license was issued.

1922. A teletypewriter system was installed to link borough headquarters and local station houses.

1923. Radiotelegraph equipment was installed on a police motorcycle.

1931. All police cars were equipped with radio receivers, and three base stations were put into operation.

1937. Two-way radio was installed.

1950. All police vehicles were equipped with two-way radio.

1964. The citywide police emergency telephone number, 440-1234, was introduced.

1968. A new citywide emergency telephone number, 911, was established.

1968. SPRINT — Special Police Inquiry Network — was made operational.

The Radio Club of America, Inc.

The Radio Club of America was founded in 1909 by the industry's pioneers, and is the oldest active radio club in the world. Its roster of members is a world-wide Who's Who that includes many who founded and built the radio industry with their ingenious creativity and down-to-earth practical idealism.

An objective of the Club is to promote cooperation among individuals interested in scientific study of all kinds including the communication arts. The Club activities include scientific education encouraged through the presentation and discussion of technical papers given by outstanding invited guest speakers at the regular meetings. Club membership includes students, university professors, inventors and other active professionals, and well-informed gentlemen-amateur scientists.

The Radio Club of America continues to distinguish itself from other purely technical societies through great freedom and range of expression in the interchange of ideas, and by the continuing effort to provide the meeting ground for such persons with scholarly interests in common. The Club meetings and publications are marked by their quality, not quantity; at no time in the Club's long history has as many as a dozen technical papers been given and published in a single year. The development of life-long friendships among club members has been a most frequent and intended happy by-product of its activities.

The Club holds an annual banquet in New York City, usually in late November or early December, as well as several technical-social meetings throughout the year. A lively informal discussion with the guest usually occurs before the meeting at dinner; it often increases in tempo and enthusiasm during the question and answer discussion that follows the delivery of the paper.

Joint meetings with other technical societies occur when the important opportunity arises.

Achievements that are outstanding are recognized by awards. Typical is the Armstrong Medal, established in 1935 to honor Prof. E. H. Armstrong who contributed regeneration, the superheterodyne and frequency modulation to today's art.

The Proceedings of the Radio Club of America, the oldest radio periodical in existence, is a contemporary record of the best in the current art. Members receive a subscription to the Proceedings in addition to the other benefits of membership in return for payment of very modest dues.

The Club is currently expanding its activities, but is limiting the size of its membership. Emphasis is placed on the very best of the art, supported by fraternization and good fellowship. Applications for membership are considered on the basis of personal qualifications, aims and goals.

Application forms may be obtained by writing to **The Radio Club of America, Inc.**, Room 319, 250 Park Avenue, New York, N. Y. 10017.

"Recognition" Is This Year's Banquet Theme

The highest honor the Club can bestow on its members is advancement to the grade of Fellow. The qualifications of a prospective Fellow are reviewed by the Board of Directors. If the Board agrees that a Fellow nominee is qualified, the Board may then elect him a Fellow. No one may apply for Fellow membership. Proposals to advance specific members to the grade of Fellow are submitted to the Executive Committee by the Nominating Committee for advance review prior to consideration by the Board. Nominations may also be submitted to the President, Executive Secretary or the Nominating Committee by any member or Director.

Fellow certificates will be presented to newly elected Fellows at this year's banquet by Fred M. Link, President of the Club. These newly elected Fellows are:

Dr. Victor J. Andrew
Chairman of the Board, Andrew Corporation

In recognition of his outstanding contributions to communications over the years.

Norman G. Bach
Supervisor of Communications, Monsanto Company

In recognition of his leadership and contributions to all communications services during his years as president of the National Association of Business and Educational Radio.

John R. Brinkley
Managing Director, Redifon, Ltd.

In recognition of his many contributions to the art and science of mobile radio communications and of his pioneering efforts in both AM and FM overseas.

Robert F. Burns
Vice President — Engineering, Leo G. Sands Associates, Inc.

In recognition of his contributions over a period of many years to the development and effective utilization of radio communications.

Arthur Byrne
Coordinator, Technology and Communications,
American Can Company

In recognition of his contributions over the years to the art of communications of all categories. A man qualified to effectively utilize any and all forms of communications to the best advantages of industry and the public.

Aubrey A. Childers
Chief, Standards Division, Defense Communications Agency

In recognition of his contributions to the art and science of communications and of his effective direction of a vital federal agency.

Michael Clark
Deputy Managing Director, Plessey Company, Ltd.

In recognition of his contributions to the art and science of communications and of his effective direction as a manager of one of the world's most successful electronics facilities.

Norman C. Colby
Engineering Supervisor, RCA Corporation

In recognition of his contributions and many years of leadership that have led to the rapid technical advancement of mobile radio communication.

Bernard H. Flood
Chief Communications Engineer, Arizona Department of Public Safety

In recognition of his outstanding leadership and contributions to all radio communications activities while president of the Associated Public-Safety Communications Officers.

Edgar P. Grim
Chief, Communications and Special Services,
City of Philadelphia

In recognition of his unusual services to the City of Philadelphia for more than 50 years and his contributions to the art of radio communications as evidenced by his pioneering work in police, fire and municipal communications.

Carles A. Holt
Staff Advisor, Engineering, Los Angeles Police Department

In recognition of his many outstanding contributions to the development of public safety radio communication and of his great foresight and initiative.

John A. McCormick
Mobile Radio Coordinator, General Electric Company

In recognition of his outstanding contributions to the art and science of mobile radio communication over the past 25 years.

William B. Morton
Supervisor of Communications, U. S. Forest Service

In recognition of his important contributions to the communications industry and activity through his leadership in establishing better types and quality of service in radio and other forms of communication for the important agency he serves.

Joseph R. Sims
Communications Consultant

In recognition of his many contributions to the art and science of broadcasting and radio communication and of his valued services as a director and committee chairman of the club.

Richard A. Schomburg
Hillsboro, Oregon

In recognition of his continuing interest in the art and science of radio and of his long participation in the activities of the club.

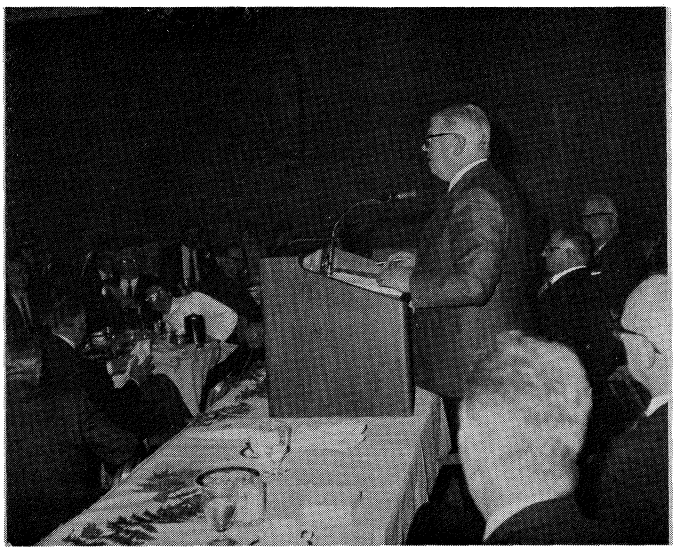
Robert E. Tall
Editor and Publisher, Industrial Communications

In recognition of his serving as the focal point of the mobile radio industry and of his outstanding capabilities as a reporter of telecommunications regulation activities.

Stephen T. Walsh
Inspector and Communications Director,
New York Police Department

In recognition of his many years of leadership in the field of police communications.

Bill Lear Speaks At 1970 Banquet



Bill Lear, cartridge and automatic plane pilot pioneer, addresses the 1970 Annual Meeting on "Damn the Smog — Full Steam Ahead", describing the antipollution hopes for his automobile steam engine.

Fred M. Link, president of the Club, and E. F. Johnson, speaker at this year's Annual Meeting, discuss old times and old equipment at the 1970 Radio Club Annual Meeting.

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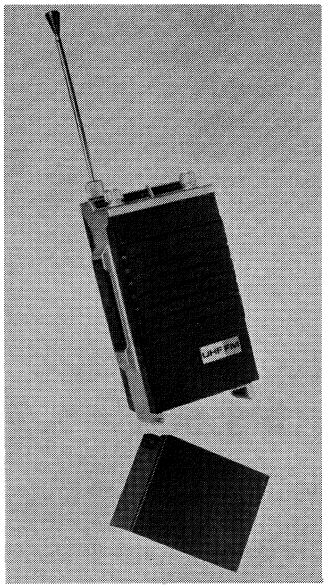
news FROM REPCO

NEW UHF-FM HAND-HELD PORTABLE FEATURES AUTOMATIC SIGNAL LOCK

A new miniature UHF-FM hand-held radio, that can automatically compensate for frequency drift, has been developed by Repco Incorporated, Orlando, Florida.



The new radio incorporates Dual Phase Lock-Loop circuitry which senses any frequency error up to plus or minus 5KHz and automatically compensates the receiver to lock on to the exact transmitted frequency. The resultant effect is increased clarity and greater range.

The radio will be available in March after operational testing. Although designated the TEK 10-2, the radio will not be marketed by Repco directly. Repco's entire line of two-way radios is marketed under private labels by several leading mobile communication equipment manufacturers located both in this country and abroad.

For further information and specifications, write to Repco, MCP Department, at the above address.

The TEK 10-2 features small size, 6.8″ x 2.58″ x 1.50″; light weight, 20 oz. with battery; high RF output, 2.0 or 4.0 watts; multi-channels, 1-6 transmit & receive; quick-change battery; and Rapid Charger. PBC (plug-in block circuit) modules provide maximum reliability in operation, plus minimum maintenance down time.

ROSTER OF LIFE MEMBERS

(As of October 1, 1971)

Name	*Grade*	*Member Since:*
Leon L. Adelman	F	1951
Ernest V. Amy	F	1909
John W. Arnold	F	1929
Wilson Aull, Jr.	F	1920
George W. Bailey	F	1948
Salvatore Barone	F	1926
S. H. Bernard	F	1942
Harold H. Beverage	F	1920
J. Alan Biggs	M	1949
Albert K. Bohman	F	1926
John M. Borst	F	1934
Meade Brunet	F	1928
Harold H. Buttner	F	1928
John L. Callahan	F	1922
Frank E. Canavaciol	F	1934
Louis F. B. Carini	F	1930
Howard T. Cervantes	F	1939
Lewis M. Clement	F	1920
Howard L. Cobb	F	1934
Hugo Cohn	F	1939
George C. Connor	F	1942
Lawrence Cook	F	1939
Robert V. Crawford	F	1940
Robert D. Darrell	M	1946
Howard B. Day	F	1921
John DiBlasi	F	1920
Edward T. Dickey	F	1927
William F. Diehl	F	1920
Karl D. Engle	M	1929
C. L. Farrand	F	1920
Edwin P. Felch, Jr.	F	1939
Edgar H. Felix	F	1928
Wm. G. H. Finch	F	1927
Robert Finlay	F	1939
Paul F. Godley	F	1920
Thomas T. Goldsmith, Jr.	F	1939
W. Manning Grim	F	1926
Frank A. Gunther	F	1940
Hugh G. Hamilton	M	1950
Samuel N. Harmatuk	F	1957
Daniel Harnett	F	1925
J. K. Henney	F	1927
Charles J. Hirsch	F	1947
C. W. Horn	F	1920
Harry W. Houck	F	1920
Wallace M. James	F	1931
Kenneth W. Jarvis	F	1938
J. Kelly Johnson	F	1941
Leo A. Kelley	F	1938
Frank King	F	1920
Harold M. Lewis	F	1923
Arthur V. Loughren	F	1924
Arthur H. Lynch	F	1921
Walter Lyons	F	1952
Benjamin Miessner	F	1963
Alexander A. McKenzie	F	1949
Renville H. McMann	F	1920
Wm. H. Offenhauser, Jr.	F	1936
Jack R. Poppele	F	1941
D. E. Replogle	F	1937
F. X. Rettenmeyer	F	1928
Avery G. Richardson	F	1941
John F. Rider	F	1932
Thomas Ronald	M	1946
C. R. Runyon, Jr.	F	1920
Martin Schnoll	F	1928
Henry L. Shenier	F	1952
Francis H. Shepard	F	1936
J. E. Smith	F	1930
Myron T. Smith	F	1934
Joseph J. Stantley, Sr.	F	1920
Jerome R. Steen	F	1947
Archie M. Stevens	F	1928
W. E. D. Stokes, Jr.	F	1920
Thomas J. Styles	F	1920
David Talley	F	1949
Willis H. Taylor, Jr.	F	1920
Leslie G. Thomas	M	1928
Wilbur E. Thorp	F	1948
L. P. Tuckerman	F	1928
Wm. H. Vogel, Jr.	M	1940
Harry Vorperian	M	1941
Lincoln Walsh	F	1934
Harold A. Wheeler	F	1935

M = Member at time of becoming a Life Member
F = Fellow at time of becoming a Life Member
Date indicates year of joining the Club.

CLUB MEMBERSHIP TOPS 500

As of October 20, 1971, the Club membership had grown to 510 in the following categories: 108 Fellows, 75 Fellows who are also Life Members, 314 Members and 8 Members who are also Life Members.

RUSSIAN TRANSLATIONS AVAILABLE

Scholars and engineers interested in reading Russian technical journals and books may obtain English translations from Plenum Publishing Corp., 227 West 17th St., New York City 10011 (phone 212/255-0713).

FELLOWS, RADIO CLUB OF AMERICA

(Non-Life Members)

Since the overwhelming majority of Life Members are Fellows, including them in this roster would be redundant, and tantamount to simply reprinting the list on page 16. Therefore those Fellows who are not life members are listed below. The first two numbers following each name indicates the year he joined the Club — the second two, the year in which he was elected to Fellow status.

Robert H. Adams	56-61	Raymond F. Guy	39-40	Charles W. Palmer	35-48
R. W. Akin, Jr.	24-44	F. Summer Hall	49-57	George Papamarcos	41-53
Edward J. Amerman	38-53	William J. Halligan	60-64	Gordon V. Pack	61-64
Victor J. Andrew	69-71	Carles A. Holt	71-71	Edwin J. Quinby	59-63
C. E. Atkins	62-67	Lewis Hull	-51	Andrew H. Quist, Jr.	40-57
Horace Atwood, Jr.	56-61	Andrew F. Inglis	70-70	Edward G. Raser	57-64
Norman C. Bach	69-71	D. Lawrence Jaffe	53-59	Edmund B. Redington	60-64
Alfred W. Barber	52-57	C. M. Jansky, Jr.	68-70	Nicholas J. Reinhardt	56-61
Frank P. Barnes	69-70	Edgar F. Johnson	69-69	Eugene H. Rietzke	69-70
Joseph Behr	48-52	Leonard R. Kahn	53-61	William W. Roberts	52-59
John Bose	38-40	William J. Kanz	70-70	Frank R. Rockett	49-57
John R. Brinkley	71-71	Edmund Kardauskas	51-64	C. R. Runyon III	48-52
Robert F. Burns	69-71	R. E. L. Kennedy	42-52	W. Gordon Russell	47-53
Arthur Byrne	70-71	I. Jordan Kunik	52-64	R. E. Rutherford, Jr.	61-64
Thomas F. Carter	69-69	James J. Lamb	-58	Leo G. Sands	60-69
Aubrey A. Childers	69-71	William P. Lear	69-69	Richard A. Schomburg	57-71
Kenneth A. Chittick	41-53	Fred M. Link	68-68	Harold F. Schwede	69-70
P. S. Christaldi	40-50	Henry R. Mallory	58-64	Benjamin E. Schackelford	-43
Joseph T. Cimorelli	50-57	Ernest A. Marx	49-57	Seymour N. Siegel	67-69
Michael Clark	70-71	Frank L. Marx	55-64	Edward Sieminski	35-53
Norman C. Colby	71-71	Stuart Meyer	56-67	Julian M. Sienkiewwicz	65-70
George C. Connor	36-42	Art H. Meyerson	57-63	Joseph R. Sims	70-71
John D. Crawford	39-57	George R. Mezger	56-63	Charles H. Singer	47-52
Murray G. Crosby	39-40	Arthur G. Miller	49-64	Arthur V. Smith	60-69
L. G. Cumming	69-69	Donald H. Miller	44-57	George E. Smith	68-69
Leo C. Cunniff	58-63	Jerry Minter	42-44	E. King Stodola	58-64
J. R. Edinger	49-57	James Morelock	37-40	W. O. Swinyard	41-57
Donald G. Fink	34-70	William B. Morton	70-71	Robert E. Tall	70-71
Bernard H. Flood	70-71	John A. McCormick	69-71	Ernest H. Ulm	50-57
William H. Forster	70-70	Renville H. McMann, Jr.	44-52	John M. Van Beuren	42-44
Marcus Glaser	51-57	J. Rhett McMillian, Jr.	70-71	Carroll P. Vaughan	64-69
Barry M. Goldwater	69-70	C. F. O'Donnell	69-70	Stephen T. Walsh	71-71
Alfred H. Grebe	53-59	Perry H. Osborn	44-57	W. Walter Watts	60-64
William Grenfell	69-70	Edmund Osterland	50-57	Charles H. Yocum	37-52
Edgar P. Grim	70-71	Lucius E. Packard	40-41	Matthew E. Zaret	51-61
Paul Gruber	56-61	E. C. Page	46-57	Frank R. Zayac	48-55

HONORARY MEMBERS of THE RADIO CLUB OF AMERICA

The numerals following the names listed below indicate the year in which these distinguished persons were elected Honorary Members of the Club.

Ernest V. Amy	**1964**	**Lloyd Espenschied**	**1959**	**Alfred N. Goldsmith**	**1922**
Richard W. Konter	**1970**	**David Sarnoff**	**1926**		

NEWS OF THE CLUB

RALPH BATCHER FILES SENT TO SMITHSONIAN

The books and papers of the late Ralph R. Batcher, a past president of the Radio Club, have been transferred from the IEEE warehouse to the Smithsonian Institution in Washington, D.C. with the IEEE defraying the transportation expenses. The arrangements for this transfer were made by William H. Offenhauser, director and past president of the Radio Club, who proposes to brief the historian of the Smithsonian Institution on the contents of the papers and their historical significance.

All the papers, equipment, apparatus and radio and wireless effects of Mr. Batcher were turned over free and clear to the Club by his widow, Lois M. Batcher, in a letter of intent dated December 14, 1968, shortly after Mr. Batcher's death. The papers were moved from the Batcher home in Douglaston, New York to the IEEE warehouse for safe keeping until a permanent home could be found for them.

FRED SHUNAMAN NEW PROCEEDINGS EDITOR

Fred Shunaman was appointed by President Fred Link to serve as chairman of the Publications Committee and editor of The Proceedings of The Radio Club of America, succeeding Ralph Brozan, attorney and radio communicator, who continues to serve as a legal adviser to the club's Board of Directors. Brozan resigned the post because of the pressure of other duties.

Shunaman takes over the editorship with outstanding credentials. For a quarter of a century, he was associated with the late Hugo Gernsback as an editor. His most recent assignment with Gernsback was that of managing editor of **Radio-Electronics,** one of the world's most widely circulated electronics publications. Many of his authors, including Leo Sands, executive secretary of the Radio Club, regard Shunaman as one of the best editors in the field. Sands is quick to point out that Shunaman is one of the few editors who fully explains what he wants and takes the time to write a critique that the author can use as a guide for future editorial contributions.

Shunaman's experience in the field is not confined to radio journalism. He has been a radio service technician, radio amateur and marine operator. Since he was retired from his post at Gernsback, he has written a book, "Test Instruments in Electronics Servicing," and co-authored — with Leo Sands — one on hi-fi and stereo systems. He is now kept busy as a "descriptive technical writer." He has translated French- and Scandanavian-language works into English, and writes about technical subjects in English that can be understood. Shunaman is available for ghost-writing assignments.

News about the activities of Radio Club members should be sent to Shunaman in care of the club office at 250 Park Avenue in New York City. He can be reached by telephone at his home in Plainfield, New Jersey at 201/755-3093.

DR. ANDREW DEAD

At press time it was learned that Dr. Victor J. Andrew, a recently elected Fellow of the Club, had died on October 30. He was to have been honored at the Annual Banquet on December 3.

McMANN EXECUTIVE AT CBS LABS

Renville H. McMann, Jr., a Fellow of the Radio Club of America, has been made executive vice president, CBS Laboratories. He has held the position of vice president and director of engineering at the Labs for the past six years.

McMann, who joined the Club in 1944 and became a Fellow in 1952, has worked in the development of the "starlight" television camera, transmitting color pictures from inside the human body for medical use, the image enhancer and electronic color corrector for color television, and the CBS Mimicam Mark IV camera system.

CLUB CHAPTERS

Members in California have indicated interest in forming a chapter of the Radio Club of America where there are more than 30 members. In any area where there are more than 10 members, the Board will consider granting authority to organize a chapter. Please address inquiries to the Executive Secretary, for transmission to the Board.

COMMITTEE TO STUDY AWARDS

The Executive Committee has been ordered by the Board of Directors to study the present awards made by the Club and discuss what other awards should be considered. The present awards are the Armstrong Medal and the Armstrong Medallion, neither of which will be presented this year. At present, the Armstrong Medal can be given only to members of the Club. It has been suggested by past President William Offenhauser that a Ralph Batcher award be considered. One of the objects of the study is to determine if Radio Club awards—or some of them —should be made to anyone qualified, whether Radio Club members or not.

OBITUARY

The Club regrets to note the passing of the Members listed below:

	Joined	Died
Virgil M. Graham	1931	April 1970
L. D. Alexander	1924	Aug. 1970
Frederick Ireland	1937	Oct. 1970
Allen E. Schumacker	1937	Oct. 1970
William L. D. Freseman	1958	Dec. 1970
W. J. Kishpaugh	1921	March 1971
Joseph Sara	1930	March 1971
Leroy J. Bremmer	1953	June 1971
William C. Simon	1946	Sept. 1971

GOLDWATER ELECTED QCWA PRESIDENT

Senator Barry Goldwater, a Fellow of The Radio Club of America, has been elected president of the Quarter Century Wireless Association. Dr. George Bailey, a director of the Radio Club, was re-elected a director of QCWA. David Talley, a director and an officer of QCWA since it was founded in 1957, retires as secretary. Talley is currently treasurer of The Radio Club.

BOOKS BY RADIO CLUB MEMBERS

Several members of the Radio Club of America are authors of some excellent books. Now you can buy these books through your Club. By doing so, you will help your Club offset some of its costs. To order any book listed below, send your check for the specified amount to The Bookmonger, Radio Club of America, Inc., 250 Park Ave., New York, N.Y. 10017. You can also order any other book published by Hayden, Sams or Tab. You can get a free catalog of any of these publishers by writing to the Club office.

ROBERT F. BURNS

FCC Type Acceptance Manual. A guide for radio transmitter manufacturers and marketers. Explains how to conduct FCC type acceptance tests, how to prepare the reports and how to file FCC type acceptance applications. This is a "work book," not a bookshelf decoration. It's got to be at it's price, which is . . . $200.00

FRED M. LINK

Portable FM Radiotelephones. Quantities of the information you need on walkie-talkies and packsets. Valuable to the designer, maintainer and user of FM two-way radio. $5.50

LEO G. SANDS

Microwave Systems Planning (co-authored with Kenneth L. Dumes). Explains how to calculate space transmission losses, determine propagation reliability and select the right frequency band. $8.00

FRED SHUNAMAN

101 Q & A About Hi-Fi and Stereo (co-authored with Leo G. Sands). Almost everything you need to know about home music reproduction systems. $3.50

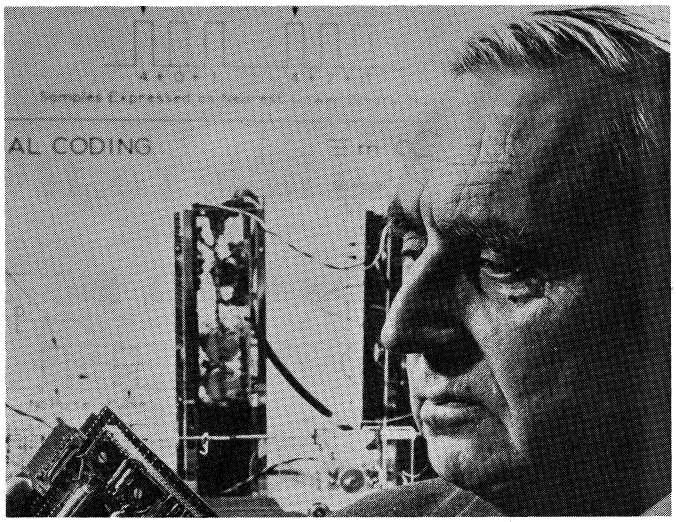
The Use of Instruments in Electronic Servicing. "A really useful book that takes the technician a level below the practical instrumentation to an understanding of what he is doing." $4.95

DAVID TALLEY

Basic Telephone Switching Systems. Discusses in a simple manner the basic principles of modern telephone switching systems, including S x S, panel, crossbar and the new highly sophisticated electronic switching systems. $4.95

Basic Carrier Telephone. A basic course in the principles and applications of carrier telephony. Various carrier systems are described, including Pulse Code Modulation. $4.95

ALEC HARLEY REEVES (1902-1971)



The inventor of PCM (pulse code modulation), Dr. Alec Harley Reeves, died in London on October 13. Until his retirement in 1970, Dr. Reeves spent his entire professional career with ITT. In 1923, he joined International Western Electric Company, which is now Standard Telephones and Cables, British subsidiary of ITT, and later worked in the Paris laboratories of ITT.

He worked on the first transatlantic telephone system, the first Spain-to-South America HF radio link and the first microwave system across the English Channel. He was also a part of the team that developed the first SSB radio system.

CLUB LIBRARY HAS NEW BOOKS

Two new books have been added to the club library. One is "The History of General Radio Company" and the other "History of Communications-Electronics in the United States Navy" which was presented to the club by the Office of Chief of Naval Operations, Naval History Division, through the kindness of Rear Admiral E. M. Eller.

Past President Offenhauser said that he recently was able to give General Radio a copy of Volume 1, No. 1 of the **General Radio Experimenter,** which, incidentally, General Radio did not have in its files.

General Radio is assembling a full and complete file of the General Radio Experimenter and needs the following issues to complete the task:

1926 — September, October, November; 1927 — January, February, March; 1928 — April; 1929 — April, June. Any member having copies of those issues who is willing to part with them should send them to Miss V. A. Krysieniel, General Radio Company, West Concord, Mass. 01781. General Radio will be glad to send donors a Xerox copy of their gifts and their eternal thanks for their generosity.

BILL OFFENHAUSER HOSPITALIZED

William Offenhauser, a past president of the Club and an incumbent director, has advised that he will be in the hospital for an extended period. Mail can be addressed to Bill at Box 595, New Canaan, Conn. 06841.

YOU, SIR, ARE INVITED TO JOIN A WINNER!

NABER *has produced major breakthrough results which benefit you as a radio user:*

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3. A vigorous protest before the FCC against the proposed engineer's certification on antenna location. The enactment of this rule could have cost you from $50.00 to $1,000.00 additional. (This proposal was officially dropped in August, 1967.)

4. Petitioned for special frequencies to be used exclusively for paging. In allocating a total of 12 frequencies for paging, the FCC stated that paging should not occupy general business frequencies.

5. Research that lead to the removal of restrictions from a portion of UHF business channels.

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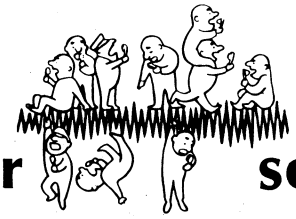

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