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GANO DUNN

Edison Medalist

1937



PRESENTATION CEREMONIES

AT

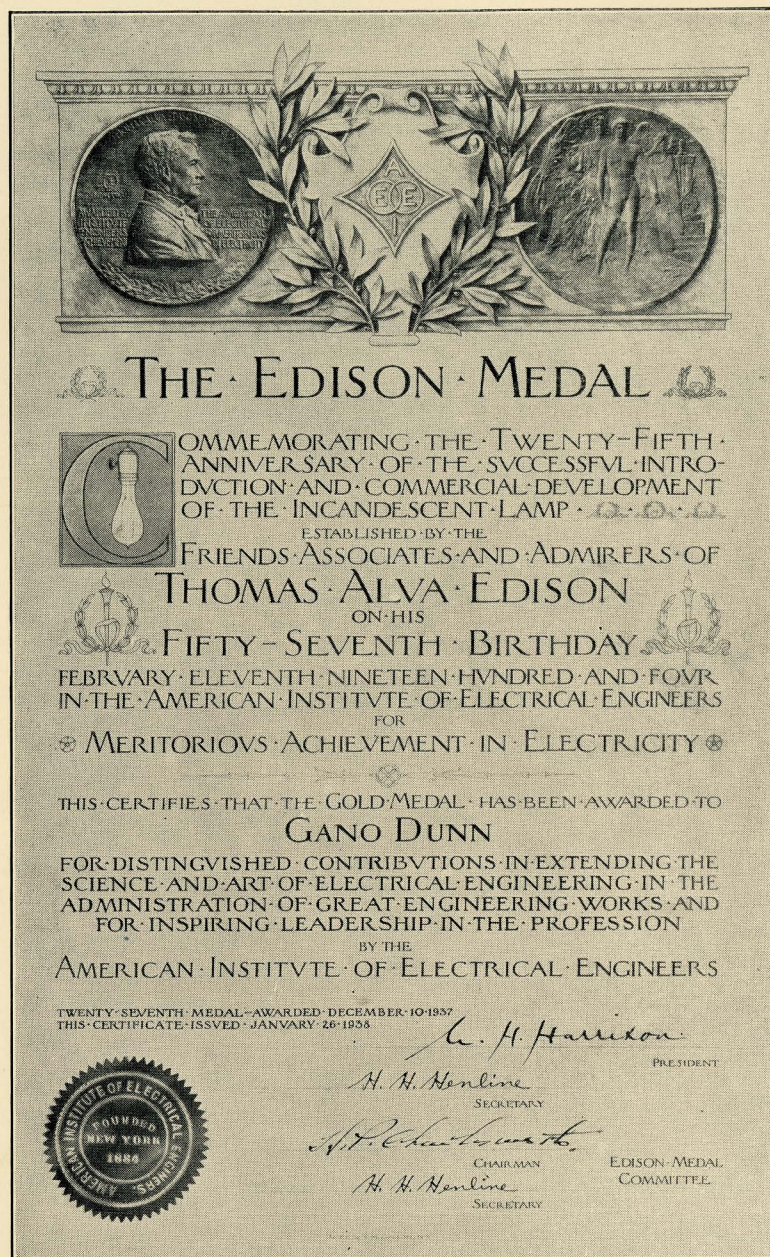
WINTER CONVENTION

AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS

NEW YORK, N. Y., JANUARY 26, 1938

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# THE EDISON MEDAL

AWARDED BY THE AMERICAN INSTITUTE  
OF ELECTRICAL ENGINEERS  
TO

## GANO DUNN

*For distinguished contributions in extending the  
science and art of electrical engineering, in the  
administration of great engineering works, and for  
inspiring leadership in the profession*



The Edison Medal was founded by associates and friends of Thomas A. Edison, and is awarded annually by a committee consisting of twenty-four members of the American Institute of Electrical Engineers for "meritorious achievement in electrical science, electrical engineering, or the electrical arts."

1937





GANO DUNN

## PRESENTATION CEREMONIES

**P**RESENTATION of the Edison Medal to GANO DUNN took place on Wednesday evening during the Winter Convention of the Institute, held in New York, N. Y., January 24-28, 1938.

President W. H. Harrison opened the meeting with the following brief greeting:

I am glad to welcome you here this evening. The occasion of the presentation of the Edison Medal is always a memorable one, and tonight especially so, as we are here to do honor to one of our most distinguished associates—one who was our President in 1911-12, Mr. Gano Dunn, an engineer who, by his achievement, his character, and his distinction, reflects such great credit to the profession and inspires his fellow engineers to higher ideals.

He then introduced Past President H. P. Charlesworth, Chairman of the Edison Medal Committee, who made the following remarks regarding the establishment and awards of the Edison Medal:

## THE EDISON MEDAL

The Edison Medal was founded by an organization of associates and friends of Thomas A. Edison who desired to commemorate the achievements of a quarter of a century in the art of electric lighting, with which Edison had been so prominently identified.

It was decided that the most effective means of accomplishing this object was by the establishment of a gold medal which could serve "as an honorable incentive to scientists, engineers, and artisans to maintain by their works the high standard of accomplishment" which had been set by Edison. The American Institute of Electrical Engineers was invited to undertake the responsibility of making the awards. The Institute accepted and organized the Edison Medal Committee, or board of award, composed of twenty-four members.

Three of these members are appointed each year by the president of the Institute to serve for a term of five years each; three are elected each year by the Board of Directors from its own membership to serve for a term of two years each; the other three members are ex-officio—the President, the National Treasurer, and the National Secretary of the Institute.

The By-laws of the committee provide for making one award each year, and the Deed of Gift specifies that the award shall be made to some one resident in the United States or Canada, for meritorious achievement in electrical science, electrical engineering, or the electrical arts.

The medal was designed by James Earl Fraser, and carries on the obverse the portrait of Thomas A. Edison and on the reverse an allegorical conception of the genius of electricity crowned by fame.



The first award was made to Dr. Elihu Thomson in 1909. The other awards have been made to the distinguished men whose names appear on your program.

We are honored by the presence of two of these men this evening, Bancroft Gherardi and Charles F. Scott.

In December 1937 the last award was made to Mr. Gano Dunn "*For distinguished contributions in extending the science and art of electrical engineering, in the administration of great engineering works, and for inspiring leadership in the profession.*"

### THE LIFE OF THE MEDALIST

Mr. Bancroft Gherardi, Vice President and Chief Engineer of the American Telephone and Telegraph Company, and Past President of the American Institute of Electrical Engineers, reviewed the life and professional career of Mr. Dunn, as follows:

I am grateful that the committee has given me the opportunity to tell this distinguished gathering something of the personality and achievements of the medalist whom we are gathered together this evening to honor. It is a privilege and a satisfaction to me to have a part in this presentation of the Edison Medal to my friend and associate of many years.

In the brief time available it is not easy to tell of the medalist's achievements because there have been so many of them. His distinction does not rest upon a few things which he has done, but rather upon a multitude of accomplishments, each well worth while. They are notable for their diversity of character.

His career from its beginning is one of which his many friends are rightly proud. He acquired a good education under conditions that made it necessary for him to work during the hours when he was not attending classes or studying. He first went to the College of the City of New York and in 1889 received from that institution the degree of Bachelor of Science with the distinction of a Phi Beta Kappa key. Then, going to Columbia University, he received the degree of Electrical Engineer in 1891. Later, in 1897, he received from the C. C. N. Y. the degree of Master of Science. During the period from 1886 to 1891 he worked for the Western Union Telegraph Company as a night telegraph operator. During the years in which he was acquiring his formal education he became acquainted with Francis B. Crocker, the President of The Crocker-Wheeler Electric Motor Company, and Michael I. Pupin. Both of these men were at that time professors at Columbia University. Each of them later became President of the American Institute of Electrical Engineers. With these men, outstanding in engineering and in science, Dunn's ability and personality made an immediate impression and earned their respect and their lasting friendship.

Upon completing his work at Columbia University in 1891 he accepted a position with the Crocker-Wheeler Company. Almost immediately he demonstrated his scientific knowledge and practical judgment by improving the design of its product and showing how to overcome certain difficulties which were

being experienced by the users of its motors. These were seriously threatening the success of the business. The value of his services was appreciated and he earned rapid promotion in this company until he became its Vice President and Chief Engineer, a position which he held until 1911. Those of us who can still remember the electric motors of that time know of the high standing of those manufactured by the Crocker-Wheeler Company and the extent to which this was due to the understanding and abilities of Gano Dunn. Although one of the smaller independent electrical manufacturers, this company successfully withstood and still withstands the keen competition of its larger rivals, due in considerable measure to the contributions made by its former Chief Engineer. Many of these were of such a nature that they were not patentable. In addition, he is credited with over 30 patents having to do with the design and construction of electrical machinery. I wonder how many of the stockholders of the Crocker-Wheeler Company now appreciate what they still owe to Gano Dunn.

In 1911 Dunn's personality and professional standing caused James Gilbert White, the founder and head of J. G. White and Company, to offer him a vice-presidency of that company, which offer he accepted. He assisted Mr. White in organizing the J. G. White Engineering Corporation, and in 1913 became its first President. This position he has held continuously since then. He has been and still is a major factor in the growth and splendid achievements of that corporation. Its name and his name are known throughout the world and in practically every continent there will be found numerous examples of engineering and construction which testify to the standing and ability of the company and of its President.

During the World War, the J. G. White Engineering Corporation, under war pressure, built many important government projects. I shall not now enumerate all of the important works designed and executed for the government both during and after the war, but as illustrative I might mention nitrate plants, the great steam plant at Muscle Shoals and large government aviation terminals. The work of this firm, however, has been by no means limited to construction work for the government. As a few typical cases of work for private concerns I cite sulphur extraction plants, large transatlantic radio telegraph stations, the first long-distance natural gas pipe line in California, oil refineries and important hydroelectric power plants.

Even the renovation and redecoration of the Metropolitan Opera House in New York City with new stage and house lighting, modern switchboard controls, ventilating and air conditioning was not beyond the scope of the organization which Gano Dunn heads. A list of the clients of his company reads like the roster of the largest and finest corporations in this country. His company has likewise done important work for foreign governments and private concerns.

When I have referred to Dunn's engineering achievements it might be supposed that, as I am speaking of an engineer, I have said about all that there is to say. This assumption, however, would be far from the facts. One of the characteristics of the medalist is the broad scope of his interests and activities. Every engineer owes an obligation to his profession aside from his work as an engineer. This obligation Dunn has assumed as a privilege and he has more than performed his share in the organized undertakings of his profession.



He has taken an active part in the management of the American Institute of Electrical Engineers. He has served on its governing Board as a manager and a Vice President, and during the year 1911-12 he was its President. Even to-day he is remembered by those who knew him at that time as one of its most able and effective administrators.

He was a leader in the formation of the Engineering Foundation and had much to do with securing the splendid endowments presented to that organization by Ambrose Swasey. Dunn was the first chairman of the Engineering Foundation.

He was prominent in connection with the starting of the United Engineering Societies, the organization which holds, on behalf of the four national engineering societies, the building in which this meeting is being held. For a number of years he was a member of the Board of that Society and was its President during the years from 1913 to 1916.

The National Research Council felt the benefit of his association with it and from 1923 to 1928 he was its chairman and chief executive officer.

He has had important associations with international congresses and other organizations which only time prevents my mentioning.

One of my stimulating associations with Gano Dunn was during the war. At that time there was naturally much concern in the minds of the authorities at Washington as to the possibility of the transatlantic telegraph cables being cut, thus interrupting or crippling telegraphic communication with our associates in the war and with our military forces in Europe. To be prepared for such a contingency our State Department appointed a special committee on submarine cables and Gano Dunn was its chairman. Several members of this committee were representatives of the telephone and telegraph industry in the United States. It was my good fortune to be one of these. Associated with the committee were attaches representing the army and navy. This committee made a complete study of the problem and, under its general direction, experimental work was carried on so that all possible ways of meeting such an emergency in communication with Europe were explored. Fortunately, conditions did not arise which made it necessary to meet the contingency for which the committee was appointed, but throughout the skill with which the chairman of the committee directed its work was noteworthy.

Engineering, however, does not circumscribe Dunn's activities. He is also interested in science, which lies at the foundation of engineering. He has maintained a private laboratory at his home primarily for the satisfaction of his own intellectual curiosity. Illustrative of the breadth of his interests, and to me quite significant, is the fact that at one time Dunn took the necessary courses, passed the required examinations and secured a first-class commercial radio operator's license. He wants to know about things and likes to do things. At least one situation developed where his equipment for radio telegraphy enabled Dunn to handle a most important emergency call while on a friend's yacht on the Pacific Ocean. He received and relayed an S. O. S. message for a ship in serious distress. This was made necessary by the fact that the radio equipment on the ship in trouble was not sufficiently powerful to reach Hawaii, the nearest settled land.

He has been a member of the National Academy of Sciences for many years and has established for himself a position of leadership in that distinguished scientific organization. For three years he served as chairman of its Engineering Section.

His interest in science and engineering has not been limited to this country. He is a member of important engineering organizations abroad and is Honorary Secretary for the United States of the Institution of Electrical Engineers of Great Britain.

No man who worked so industriously to secure an education should, after securing it, lose interest in such matters and give no thought to contributing something to the opportunities that may be open to others. Dunn has given generously of his time and wisdom to the management of institutions of higher learning. He has served as a trustee of Columbia University, of Barnard College and of the Cooper Union for the Advancement of Science and Arts. To-day he is the President of the latter organization and through his effective work and rare abilities has contributed in a large measure to its welfare and its growth.

Many men become associated with organizations of one kind or another without showing any particular interest in the purposes of such institutions or taking an active part in their management. This, however, is not the method of Gano Dunn. Over past years he and I have been associated together in many organizations. Always he has taken an understanding and a helpful part in the direction of affairs.

He is an honorary member of organizations outside of the engineering field and has received several honorary degrees and other awards of distinction.

The social clubs to which he belongs are as distinguished in their way as the organizations to which I have specifically referred.

Of the many characteristics which go to make up our medalist, which are more clearly demonstrated by his accomplishments than by anything that I could say, I wish to mention just one which is perhaps somewhat unusual in an engineer. Combined with straight thinking and with frankness, which many engineers possess, he has diplomatic abilities of no mean order. He is one of the few engineers, perhaps the only one whom I know, who in my judgment could represent this country adequately, gracefully and in a creditable manner as the head of our embassy near the Court of St. James's.

I congratulate the Edison Medal Committee and the engineering profession on the selection of the medalist. They are honoring an engineer, a student of science, a man of affairs, a diplomat without portfolio, and a loyal friend. Gano Dunn I salute you!

## PRESENTATION

In presenting the medal and certificate to Mr. Dunn, President Harrison said:

Mr. Dunn, the highest honor within the power of the Institute to bestow is the Edison Medal, and it is a great privilege for me to present it to you, together with the certificate for 1937.



## RESPONSE BY MEDALIST

I am overwhelmed by this honor, which has more meaning for me than anyone can ever know, for Thomas Alva Edison was one of the gods of my boyhood and from then on he has been one of the profoundest inspirations of my life.

I am also embarrassed by the presentation of Bancroft Gherardi, himself an Edison Medalist, whose name adds luster to the Edison Medal galaxy.

The merits of the accomplishments he has set forth I am forced to deprecate, for they are overestimated. But to the extent that my selection for the award represents the respect, the goodwill and the affection of the leaders of the profession among whom my life's work has been cast, I seize upon and cherish the honor as one greater than I had ever dreamed of, and as a token of that something that is priceless above all estimate, the judgment of one's peers.

For me this particular stamp of gold is enriched by and will forever enshrine personal associations with its great exemplar.

These associations started at a time when, working my way thru the College of the City of New York as a night telegraph operator in the employ of the Western Union Telegraph Company, a kind friend, Mr. Somerville, then head of the Associated Press, gave me a letter of introduction to Mr. Edison at the Harrison Lamp Works.

Out of an almost infinite kindness for young men who were struggling, and particularly out of the Scottish clannishness that existed then, and still exists, between all telegraph operators, Mr. Edison received me in the midst of some laboratory work he was doing in the coating of laminated armature plates for the prevention of Foucault currents in the then novel long-legged belt-driven generators that energized the first Edison lighting systems.

Seeming to be interested in the questions I asked him, he drew me out in turn and spent an hour personally showing over his lamp works the boy who had come to visit him.

At the end of the visit, he offered me a job, which only the urgent and wise advice of several of my professors at college kept me from taking, to the abandonment of further formal education, even tho this abandonment would have meant relief from the struggle of staying at college.

I still cherish two of the first one-candle power lamps that were ever made, which Mr. Edison picked from a box and handed me as a present when I left. He did not complain that I did not take his job, and he afterward said I was right.

After graduation from the City College and later from Columbia University in the first Electrical Engineering course that had been formally organized in this country, I saw him from time to time at his various laboratories, and on two occasions he called on me when I was Vice-President and Chief Engineer of The Crocker-Wheeler Electric Manufacturing Company at Ampere, New Jersey, near his Orange laboratories, for the purpose, he said, of finding out

what had been the developments in the research work which I had been conducting for several years on the commutation of direct current generators.

In a few searching questions he extracted all I knew and pointed out fruitful directions in which to continue the work.

While my every contact with him was a thrill and a fresh polarization, I will not further retail these personal associations, except to add one of which I am very proud.

At a time when the President of the American Institute of Electrical Engineers was chosen by competitive election, and when the procedure involved a primary nomination campaign as well as a final campaign for the election itself, Mr. Edison in a letter to the then Secretary, Mr. Ralph W. Pope, which I now possess, took the lead in nominating me for the presidency. This largely contributed to my becoming the formal nominee of the Board of Directors ticket.

As often happened in those days, the Directors ticket was challenged by an opposition ticket, and in the contest which followed numerous circulars were issued to the whole membership of the Institute, then about eight thousand strong, which took a keen and active part in the balloting.

In order to take part in the preparation of one of these circulars, which was in the hands of the late Dr. Charles P. Steinmetz, Mr. Edison sent to Dr. Steinmetz a Western Union telegram, which I also now have, saying: "You can use my name for Gano Dunn as he is a friend of mine."

But whereas these personal relations account for part of the profound influence exerted on an eager young man, and the firing in him of an ambition to become an electrical engineer and to develop in the wonderful electrical field of miracle and magic, they represent only the personal side of that universal respect and even reverence felt by all electrical engineers for the accomplishments of one of the greatest geniuses the world has ever known.

When he was born Nature certainly did let loose a thinker on this planet, with all the consequences of that act.

Wherever the picture is held up to view of the world's development in the last generation with respect to the technological gifts from on high, of inventions which have lifted burdens from the back of labor, increased the conveniences and comforts of mankind, developed the resources of Nature, fostered intercommunication and the life of peoples, and raised the standard of human living with accompanying leisure for recreation, thought and mental and spiritual development, the great strokes of the brush of Thomas A. Edison will be found to have painted a large part of that picture.

Not only were the lights that shine upon us at this moment evolved by him, but also the constant potential multiple arc distribution system by which they are fed. It has become practically the only system used throughout the world, and it is perhaps his greatest invention. It is so great and has become so common and so universal that today we are hardly more conscious of it than of the air we breathe.

As a measure of its importance, let me cite what happened just two years ago in New York, when thru a disaster in the Hell Gate Station the whole system of the Consolidated Edison Company in upper Manhattan and the Bronx for the first time in history went partly out. The situation is best



reflected by an editorial in the New York Times of that date, from which I quote in part as follows:

"How utterly dependent we are on the electrical engineers! They and the Scientists hold us in the hollow of their hand . . . They constitute a new ruling class . . . Technocracy? The term is in bad odor. But there are technocrats for all that—not Knights of the Sword but Knights of Energy. When lights go out we become aware of our rulers."

Edison produced the prototype of the present day carbon transmitter used on all telephones throughout the world, and from his laboratory at Menlo Park originated the use of the word "Hello" as the call word on all American telephone systems and many others.

Incidentally, he also coined the word "juice" familiar to electrical workers to denote the electric current from a central station, and the word "bug" to mean any unexplainable difficulty with a piece of electrical apparatus.

In the realm of motion pictures, his powerful mechanical genius was felt. They did not become a reality until he produced the first successful camera for taking them and projector for reproducing them. The words kinetoscope and cinematograph take us back to those days, and even now the thing that we call "the movies" is called in England "the cinema".

Of all his inventions, the one on which he probably worked the hardest and for the longest time was his storage battery. In his day, the life of lead batteries with acid electrolyte was short, their weight excessive, and their performance sensitive to many diseases and uncertainties.

He produced the iron nickel battery with an alkaline electrolyte. It has only about two-thirds of the weight of the lead battery, and a life that is relatively indestructible by use or by abuse.

His early years as a telegraph operator developed his interest in the communications field, to which in addition to the carbon transmitter to which I have already referred, he gave the stock ticker, the automatic telegraph and the quadruplex which enabled one circuit to carry four messages at the same time, and correspondingly increased the capacity of the telegraph facilities of his day.

And in his observation of what was then named the "Edison effect" in an incandescent lamp, he was the first to discover the one way rectifying effect of an ionic stream in a vacuum. This was later developed into the Fleming valve and it has become the fundamental phenomenon on which the operation of all thermionic or vacuum tubes and the whole radio art depends.

The development of the huge Mesaba bodies of hematite iron ores in the Lake Superior region reduced the economic importance of Edison's great invention for the magnetic separation of the large deposits of iron ores of magnetite in other areas, but his process, which was a success in itself, may yet come to be of inestimable value.

Financially backed by Henry Villard, Edison was one of the pioneers in the field of the electric railway. He built and operated an experimental road at Menlo Park as early as 1880.

His advent into the art of making cement and his schemes for broadening its use in various kinds of construction have left their mark on that industry.

Much of Edison's work was in making practical and useful to the public, theories and ideas that were in existence but which lacked for their success essential features which his inventive genius and his indefatigable labors supplied in the creation of a whole that previously did not exist.

But in the case of the phonograph he was the author of the whole creation.

Just as the name of Alexander Graham Bell will never die on account of his having been the first to give to the world the means of transmitting human speech to unlimited distances, so if everything else that Edison ever did should be forgotten, his name will never die on account of his having been the first to give to the world the means of recording human speech for all time.

We are all familiar with the present day uses of the phonograph, but it is possible that posterity will regard these uses as ephemeral in comparison with the value of the records of speech and of great music and other natural sounds of our day, of which the beginnings of great phonograph libraries are already indicating the profound future importance.

All these children of Edison's brain have grown since they were born, and in their growth they in turn have called forth industry after industry, and benefit after benefit to man. The vast copper industry of today rests largely on the electrical cornerstone which Edison laid.

I mean no disparagement to the work of other geniuses who have contributed to these same fields, but if there is applied the favorite test of the late John J. Carty of calculating the consequence to this engineering world of ours by suddenly removing Edison's contributions, we should experience an utter cataclysm, which would speak in tones of thunder the debt of man to Edison's genius.

Just as he polarized the boy telegrapher and inspired his life, so he has inspired the lives of unnumbered other electrical engineers and workers in the field of engineering, endowing them with a gift by which in smaller ways they have carried in countless directions little lights ignited by his great torch.

The Edison Medal was founded, not to perpetuate his memory, for that can never die; but as a stimulus to oncoming engineers to greater achievements, and as testimony to our capacity for appreciating what he did and recognizing the immeasurableness of our debt to that great painter of the picture of our technological world.

And as the picture still goes on, with its embellishments and developments, and records each triumph in the field of the electrical engineer which peculiarly claims Edison as its own, there is not lacking in the hearts and minds of all electrical engineers who have dipped their brush in his pregnant pigment and thereby added to the world's great canvas, a proud consciousness which enables them each in his own smaller way to exclaim in the language of the humble pupil as he gazed upon one of Raphael's great works "I too am a painter".

And as I shall look upon the honor and the prized possession of this medal in the years that are to come, my heart will be truly humble and at the same time proud in the consciousness that even a little puddle can reflect the sun.



## MEDALISTS

- 1909 ELIHU THOMSON. *For meritorious achievement in electrical science, engineering and arts, as exemplified in his contributions thereto during the past thirty years.*
- 1910 FRANK J. SPRAGUE. *For meritorious achievement in electrical science, engineering and arts, as exemplified in his contributions thereto.*
- 1911 GEORGE WESTINGHOUSE. *For meritorious achievement in connection with the development of the alternating-current system for light and power.*
- 1912 WILLIAM STANLEY. *For meritorious achievement in invention and development of alternating-current systems and apparatus.*
- 1913 CHARLES F. BRUSH. *For meritorious achievement in the invention and development of the series arc lighting system.*
- 1914 ALEXANDER GRAHAM BELL. *For meritorious achievement in the invention of the telephone.*
- 1916 NIKOLA TESLA. *For meritorious achievement in his early original work in polyphase and high-frequency electrical currents.*
- 1917 JOHN J. CARTY. *For his work in the science and art of telephone engineering.*
- 1918 BENJAMIN G. LAMME. *For invention and development of electrical machinery.*
- 1919 W. L. R. EMMET. *For inventions and developments of electrical apparatus and prime movers.*
- 1920 MICHAEL I. PUPIN. *For his work in mathematical physics and its application to the electrical transmission of intelligence.*
- 1921 CUMMINGS C. CHESNEY. *For early developments in alternating current transmission.*
- 1922 ROBERT ANDREWS MILLIKAN. *For his experimental work in electrical science.*
- 1923 JOHN W. LIEB. *For the development and operation of electric central stations for illumination and power.*
- 1924 JOHN W. HOWELL. *For his contributions toward the development of the incandescent lamp.*
- 1925 HARRIS J. RYAN. *For his contributions to the science and the art of high-tension transmission of power.*
- 1927 WILLIAM D. COOLIDGE. *For his contributions to the incandescent electric lighting and the x-ray arts.*
- 1928 FRANK B. JEWETT. *For his contributions to the art of electrical communication.*
- 1929 CHARLES F. SCOTT. *For his contributions to the science and art of polyphase transmission of electrical energy.*
- 1930 FRANK CONRAD. *For his contributions to radio broadcasting and short wave radio transmission.*
- 1931 E. W. RICE, JR. *For his contributions to the development of electrical systems and apparatus and his encouragement of scientific research in industry.*
- 1932 BANCROFT GHERARDI. *For his contributions to the art of telephone engineering and the development of electrical communication.*
- 1933 ARTHUR E. KENNELLY. *For meritorious achievements in electrical science, electrical engineering, and the electrical arts as exemplified by his contributions to the theory of electrical transmission and to the development of international electrical standards.*
- 1934 WILLIS R. WHITNEY. *For his contributions to electrical science, his pioneer inventions, and his inspiring leadership in research.*
- 1935 LEWIS B. STILLWELL. *For distinguished engineering achievements and his pioneer work in the generation, distribution, and utilization of electric energy.*
- 1936 ALEX DOW. *For outstanding leadership in the development of the central station industry and its service to the public.*
- 1937 GANO DUNN. *For distinguished contributions in extending the science and art of electrical engineering, in the administration of great engineering works, and for inspiring leadership in the profession.*

## EDISON MEDAL COMMITTEE

H. P. CHARLESWORTH, *Chairman*

BEARDSLEY, C. R.	MEYER, F. J.
BUSH, V.	MILLIKAN, R. A.
FARMER, F. M.	MORROW, L. W. W.
GEAR, H. B.	OSBORNE, H. S.
HARRISON, W. H.	OSGOOD, H. W.
HENLINE, H. H.	PENN, MARION
JONES, C. R.	RODMAN, W. S.
KNIGHT, G. L.	ROGERS, C. E.
LEE, EVERETT S.	SLICHTER, W. I.
MACCUTCHEON, A. M.	STEVENS, A. C.
MCEACHRON, K. B.	WHITEHEAD, J. B.
WYATT, K. S.	