

**EDISON'S
PART IN RADIO**

and other

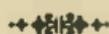
*Notable
Achievements*

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The Great Contributions
of
THOMAS A. EDISON
to Radio



AS is universally known, Thomas A. Edison is the inventor of the phonograph, the incandescent lamp, and the motion picture camera. But there are comparatively few people who realize that the same genius who made these epochal achievements discovered the fundamental principle on which all radio is based. In 1875, Mr. Edison discovered the hitherto unknown phenomenon caused by electric waves in free space, which



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he called "Ethereic Force." In truth, this might well be called the birth of radio, for without knowledge of "Ethereic Force" radio might never have been even dreamed of.

In 1883, Mr. Edison, while experimenting with his incandescent lamp, made another discovery which plays a most important part in every radio set. He found that an independent wire or plate placed between the legs of the filament of an incandescent lamp acted as a valve to control the flow of current. It was termed the "Edison Effect" and a patent was issued to him in 1883. This discovery covers the fundamental principle on which every radio tube is based. Had Mr. Edison not discovered it, there might still

be radio, but it would be of the dot-dash, crystal-receiver variety, and radio telephony might not be known. It is a far cry from such a picture to the great broadcasting chains of to-day and the millions of multiple-tube sets now operating in homes the world over.

In the broadcasting studio we find other evidences of Mr. Edison's contributions to the radio field. Every person who has listened to a broadcast program has heard the announcer refer familiarly to the "mike." This, also, was an invention of Mr. Edison's, and without it, every radio set would be useless. The present microphone is merely a glorified form of the carbon telephone transmitter, as it was then called.

Another instance of Mr. Edison's work on aerial communication was in his system of transmitting messages to and from moving trains (by induction), and between vessels at sea. This system was put into actual operation on the Lehigh Valley Railroad in 1888.

Not alone in these discoveries has Thomas A. Edison contributed to the Radio Art. His early efforts in improving the construction of dynamos, and his invention of systems for distribution, regulation, and measurement of electric current have been great factors in all electrical communication.

The last few years have been spectacular ones in the radio world. Innovations have been made, and

the quality of receiving sets has been vastly improved. One of the great accomplishments in this period was the development of the Edison  Radio—a typical Edison achievement that has brought new ease and simplicity to radio operation.





Abbreviated Chronology
of
Notable Events and Achievements
in the Life of
THOMAS ALVA EDISON

Compiled by Wm. H. Meadowcroft
Assistant to Mr. Edison
and Author of
"The Boy's Life of Edison"



- 1847 Born February 11th, at Milan, Ohio
- 1854 Moved to Port Huron, Michigan
- 1857 Started chemical laboratory in cellar of his home
- 1859 Became newsboy and "candy butcher" on trains of Grand Trunk Railway, running between Port Huron and Detroit
- 1862 Printed and published a newspaper, "The Weekly Herald," on the train. The first newspaper ever printed on a moving train
- 1862 Saved from death young son of J. U. Mackensie, station agent at Mount Clements, Mich. In gratitude, the father taught Edison telegraphy

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- 1862 Put up a telegraph line from Port Huron railway station to village and worked in local office
- 1863 First position as regular telegraph operator on Grand Trunk Railway, at Stratford Junction, Canada
- 1863 Spent nearly five arduous years as a telegraph operator in various cities of the Central Western states, always studying and experimenting to improve the apparatus
- 1868 Entered office of Western Union in Boston as operator. Later, resigned to experiment on duplex system of telegraphy, and went into private telegraph line business
- 1868 Made his first patented invention, Electrical Vote Recorder. Application for patent signed October 11, 1868
- 1869 Landed in New York City from Boston boat, poor and in debt. Shortly afterward, looking for work, was in operating room of Gold & Stock Telegraph Company when apparatus broke down. No one but Edison could fix it and he was given job as superintendent at \$300 a month
- 1869 Invented "Universal" stock ticker, also the Unison Device
- 1870 Received first money for inventions, \$40,000. Opened manufacturing shop in Newark, where he made stock tickers, etc.

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- 1871 Assisted Sholes, the inventor of the typewriter, in making the first successful working model
- 1872 Worked on and completed many inventions, to including motograph, automatic telegraph systems, duplex, quadruplex, sextuplex and multiplex telegraph systems; also paraffin paper, carbon rheostat, microtasimeter, etc.
- 1875 *Discovered previously unknown and unique electric phenomenon, which he called "Esheric Force." Twelve years afterward this phenomenon was recognized as due to electric waves in free space, and became the foundation of wireless telegraphy*
- 1876 Moved from Newark to laboratory at Menlo Park, New Jersey
- 1876 *Invented the carbon telephone transmitter, which to made telephony a commercial art. This invention*
- 1877 *included the Microphone, which makes Radio possible*
- 1877 Invented the phonograph. Patent was issued by United States Patent Office within two months after application, without a single reference
- 1878 In a prophetic article in the North American Review he foreshadowed ten prominent uses for the phonograph—all since accomplished

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- 1879 Invented incandescent electric lamp. The invention was perfected October 21st, 1879, on which day the first lamp embodying the principles of the modern incandescent lamp was put in circuit and maintained its incandescence for over 40 hours
- 1879 Invented radical improvements in construction of dynamos, making them suitable for generators for systems of distribution of current for light, heat and power. Invented systems of distribution, regulation and measurement of electric current. Invented sockets, switches, etc.
- 1879 December 31. Gave public demonstration of electric lighting system in streets and buildings at Menlo Park, N. J., using underground mains
- 1880 Invented magnetic ore separator
- 1881 Opened business offices at No. 65 Fifth Avenue, New York City
- 1881 Established first commercial incandescent lamp factory at Harrison, N. J. Organized and established shops for the manufacture of dynamos, underground conductors, sockets, switches, fixtures, meters, etc.
- 1880 Invented and installed first life-sized electric
to railway for freight and passengers at Menlo
1882 Park, N. J.

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- 1882 September 4. Commenced operation of first commercial central station in New York City for distribution of electric current for light, power and heat
- 1883 First three-wire central station for electric lighting installed at Sunbury, Pa.
- 1883 *Discovered a previously unknown phenomenon. He found that an independent wire or plate placed between the legs of the filament of an incandescent lamp acted as a valve to control flow of current. This became known as the "Edison Effect." Patent was issued to him in 1883, No. 307,031. This discovery covers the fundamental principle on which every modern Radio lamp (or tube) is based*
- 1880 Strenuous years of invention and endeavor in
to extending, improving and exploiting the electric
1887 light, heat and power systems. During these years he took out upwards of three hundred patents
- 1881 *Invented system of wireless telegraphy, (by induction)
to to and from trains in motion, or between moving
1887 trains and railway stations. Same principle capable of use at sea*
- 1887 Moved to present laboratory at West Orange, New Jersey
- 1887 Invented improvements on present type of
to cylinder phonograph. In these four years took
1890 out over eighty patents on these improvements,

and also established a very extensive commercial business in the manufacture and sale of phonographs and records, including dictating machine, shavable record and shaving machine

- 1891 Invented the motion picture camera. By the invention of this mechanism, with the continuous tape-like film originated by Eastman, it became possible to take and reproduce motion pictures as we have them at this day
- 1891 These years were spent on the great iron ore
to concentrating enterprise, in which Edison did
1900 some of his most brilliant engineering work.
He made many important inventions during
this period
- 1900 During these years Edison established a Port-
to land cement mill. He made many important
1909 inventions relating to the method and processes
involved in the production of Portland cement
- 1900 This period covers the work resulting in the
to invention of the Edison Alkaline Storage
1910 Battery, and its commercial introduction. The
Edison Battery is now used in nearly two-
thirds of all battery motivated units operated
in the United States
- 1902 Worked on improvements in the Edison Primary
Battery
- 1907 Introduced for first time the Universal electric
motor for operating dictating machines on all
lighting circuits

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- 1910 Worked on improved disc phonograph. This
to work resulted in the production of an instru-
1914 ment and records which reproduce vocal and
instrumental music with absolute fidelity and
sweetness, and on the whole, Edison's disc
phonograph commenced a new era in phono-
graphs
- 1912 Introduced the Kinetophone or talking motion
picture, after spending much time in its devel-
opment during a number of years past. He
foreshadowed the production of this combined
device in 1887
- 1914 Owing to wartime embargoes, Edison found it
necessary to develop a synthetic process for
making carbolic acid. By tremendous concen-
tration he developed the process, designed a
plant, and in less than a month had it producing
a ton a day
- 1914 On the night of December 9th, Edison's great
plant at West Orange, N. J., was destroyed by
fire. Immediate plans for rebuilding were laid,
and new buildings began to arise almost
before the ruins of the old were cold
- 1914 Invented the Telescribe, combining the tele-
phone and the dictating phonograph, thus
permitting the recording of both sides of
telephone messages
- 1915 The great World War brought about shortages
in the supplies of important chemicals, among
them carbolic acid, Paraphenylenediamine,

benzol, etc. Edison was a user of these and embargoes and shortages threatened to close his factories. He was equal to the situation and established in an exceedingly short time plants to manufacture the above named chemicals, and also others used in American industries. The products from these plants saved the day for himself and many other manufacturers in the United States

1916 Worked several months making important improvements in the manufacturing technique of disc phonograph records, and on studies of new methods and devices for recording. Worked on improved methods and processes for his chemical products

1916 During these years, as President of the Naval
to Consulting Board he did a large amount of work
1918 connected with questions of national defense, particularly with reference to special experiments on over 40 major war problems for the United States Government. He left his business affairs in the hands of his Officials and devoted his entire time to this patriotic work

1919 After the Armistice he returned to his plant at
to Orange, N. J., and resumed the direction of his
date affairs. Since then he has filed applications for many patents and a large number of patents have been issued to him in this period. Altogether he controls about 1150 patents. At this writing he is devoting much of his time to investigating the possibility of growing rubber in the United States

Thomas A Edison,