

History of telephone

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INTRODUCTION A few centuries ago, there were only a few kinds of communication that people can use. They could speak to each other, they can use smoke as a means of communication to send their message from one place to another or they could use mail. Later on, they also had telegram. During the modern age, telephone is one of the most important inventions in the field of communications.

It is a disruptive technology that had made other means of communication become obsolete. Nowadays, it has played an irreplaceable role in our daily life but not many people know about the origin and history of telephone. This assignment is to briefly introduce to you the history of telephone. It has a long history so I broke it into 4 periods: Early Telephone Development, The Beginning (1876-1900), The New Century (1904-1940) and Modern Time (1940-Today) HISTORY OF TELEPHONE Early Telephone Development In 1729, An English chemist named Stephen Gray had successfully transmitted electricity over a wire.

In 1746, Dutchman Pieter van Musschenbroek and German Ewald Georg von Kleist independently developed the Leyden jar which was named after its Holland city of invention. It is a device that was used by early experimenters to help build and store electricity. It was also called a " condenser" because many people considered electricity as fluid or matter that could be condensed. Over the years these jars were used in countless experiments, lectures, and demonstrations Figure 1: A basic anatomy of a Leyden jar

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In 1820, a Danish physicist Christian Oersted discovered electromagnetism, the critical idea needed to develop electrical power and to communicate. Oersted discovered that an electric current creates a magnetic field but he didn't know if a magnetic field could create electricity or not. If so, a new source of power would be born and the principle of electromagnetism, if fully understood and applied, would open a promise new era of communication

Figure 2: Christian Oersted In 1830 the great American scientist Professor Joseph Henry transmitted the first practical electrical signal.

Henry had showed that electromagnetism could do more than create current or pick up heavy weights - it could communicate. In a demonstration in his Albany Academy classroom, Henry created the forerunner of the telegraph. Because Henry did not pursue electrical signaling, he did help someone who did. And that man was Samuel Finley Breese Morse. In 1837, Samuel Morse invented the first workable telegraph. Joseph Henry helped Morse build a telegraph relay or repeater that allowed long distance operation.

The telegraph later helped unite the country and eventually the world. As shown in Figure 8 below, his system used 2 keys to make or break the electrical circuit, a battery to produce power, a line joining sending telegraph station to receiving station and 2 electromagnetic receivers or sounders that being turned on and off to produce a clicking noise. He completed the package by devising the Morse code system of dots and dashes. A quick key tap broke the circuit momentarily, transmitting a short pulse to distant sounder, interpreted by an operator as a dot. A more lengthy break produced a dash. Figure 5&6: Samuel Morse and a diagram on how telegraph works In 1861, A German physicist and school teacher Johann Phillip Reis produced <https://assignbuster.com/history-of-telephone/>

the first non-working telephone. His transmitter and receiver used a cork, a knitting needle, a sausage skin, and a piece of platinum to transmit bits of music and certain other sounds. But intelligible speech could not be reproduced. Figure 7&8: Johann Phillip Reis and his telephone instrument

The Beginning (1876-1900)

In the 1870s, two inventors Elisha Gray and Alexander Graham Bell both independently designed devices that could transmit speech electrically (the telephone). From the moment Alexander Graham Bell spoke “ Mr. Watson, come here, I want you. ” into his experimental telephone on March 10, 1876, an industry was born. In July of 1877, Gardiner Hubbard, George Sanders and Bell formed the Bell Telephone Company. The Charles Williams shop made the first telephones under the direction of Watson, who in effect was the Research and Development Department of the company.

In mid-1878, Theodore Vail was assigned as the new general manager of the Bell Company. The Bell company had 10, 000 phones in service at this time. Figure 9, 10&11: Alexander Graham Bell, Elisha Gray and Bell’s original telephone . Figure 12: The first commercial switchboard Go back one year, on January, 28 1878, the first commercial switchboard began operating in New Haven, Connecticut. With the invention of the switchboard, exchanges opened rapidly across the country.

On February 21, the world's first telephone directory was produced by George Williard Coy and a group of investors in the New Haven District Telephone Company at 219 Chapel Street which was a single paper consists of only fifty names. On August 1, Thomas Watson invented the phone ringer.

Previously, people used a crude thumper to signal the called party, hoping someone would be around to hear it. The ringer was an important success to the future of telephony. In 1889 the first public coin telephone came into use in Hartford, Connecticut.

In 1891, Almon Strowger invented the automatic dial system - an "automatic" telephone that "dialed" a number with the push of buttons. This invention has changed telephony forever. The New Century (1901-1940) On January 25, 1915 the first coast-to-coast telephone line opened between New York City and San Francisco. It was the world's longest telephone line. On November 8, 1919, AT&T introduced its large scale automatic switching equipment which was made, bought, and installed by Automatic Electric to their telephone system. In 1921 the Bell System introduced the first commercial panel switch.

In 1938, when the Bell System introduced crossbar switching to the central office, panel switches were removed where possible, although some remained working until the mid 1970s. The first crossbar was cut into service at the Troy Avenue central office in Brooklyn, New York on February 13th. Figure 13 & 14: AT&T large scale automatic switching equipment & Bell's crossbar switching. In January, 1927, commercial long distance radio-telephone service was introduced between the United States and Great Britain. The overseas transmitter was at Rugby, England, and the United States transmitter was at Deal, New Jersey.

In 1937 coaxial cable was installed between Toledo, Ohio and South Bend, Indiana. In that same year the first commercial messages using carrier

techniques were sent through the coax. In 1938 retractile, spring, or spiral cords were introduced into the Bell System. Spiral cords were popular immediately. Modern Time (1940-Today) On July 1, 1948 Bell Laboratories scientists William Shockley, John Bardeen, and Walter Brattain unveiled the transistor and they earned a Nobel Peace Prize for their work. The transistor would revolutionize every aspect of the telephone industry and all of communications.

The transistor was built into amplifiers and switching equipment. Hearing aids, radios, phonographs, computers, electronic telephone switching equipment, satellites and moon rockets would all be improved or made possible because of the transistor. In January, 1958, the Bell System to instituted true number calling in Texas for the first time, that is, seven numerical digits without letters or names. In 1963 the first modern touch-tone phone was introduced, the Western Electric 1500. It had only ten buttons. In 1965 the first commercial communication satellite was launched into orbit.

The No. 1ESS, the Bell Systems first central office computerized switch was also introduced in 1965. The product took at least 10 years of planning, 4,000 man years of research and development, and cost \$500 million dollars . In 1971, General Telephone and Electronics (GTE Sylvania) introduced a data system called Digicom. It enabled dispatchers identifying patrol car locations on a screen, and allowed officers to run license plate checks. During the 1950s, 1960s, and 1970s, Stromberg-Carlson of Rochester, New York and then Lake Mary, Florida, produced simple switch known as the X-Y.

Stromberg-Carlson introduced their first digital switch around 1978, the Stromberg Carlson System Century digital switch. CONCLUSION

Communication has always been the crucial part of human social life. The means of communication has changed over time according to the changes in people's living conditions and all other circumstances such as technological developments. For over one hundred years, telephone service has served as the basic communication link all over the world . Nowadays, advancements of telephone continue at a very fast speed.

Ultra-fast communications systems are being developed and improved. Cellular phones and computers have revolutionized personal and business communication. There is a great possibility that we might have a " phone-less" future as David Greenblatt, CEO for NET2PHONE, an Internet communications company stated, " Using the phone is a very unnatural way to talk to someone. " Despite whatever happen, however, telephone and its inventors will always have a secure place in mankind history as the invention that has changed the world and communication industry forever.

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 Figure 3&4: Joseph Henry and the primitive telegraph Figure 15: The first transistor Figure 16: The first commercial communication satellite

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