Passage 1

History of telegraph in communication

Jean-Antoine Nollet was a French clergyman and physicist. In 1746 he gathered about two hundred monks into a circle about a mile (1.6 km) in circumference, with pieces iron wire connecting them. He then discharged a battery of Leyden jars through the human chain and observed that each man reacted at substantially the same time to the electric shock, showing that the speed of electricity's propagation was very high. Given a more humane detection system, this could be a way of signaling over long distances. In 1 748, Nollet invented one of the first electrometers, the electroscope, which detected the presence of an electric charge by using electrostatic attraction and repulsion.

After the introduction of the European semaphore lines in 1792, the world's desire to further its ability to communicate from a distance only grew. People wanted a way to send and receive news from remote locations so that they could better understand what was happening in the world around them—not just what was going on in their immediate town or city. This type of communication not only appealed to the media industry, but also to private individuals and companies who wished to stay in touch with contacts. In 1840 Charles Wheatstone from Britain, with William Cooke, obtained a new patent for a telegraphic arrangement. The new apparatus required only a single pair of wires, but the telegraph was still too costly for general purposes. In 1 845, however, Cooke and Wheatstone succeeded in producing the single needle apparatus, which they patented,and from that time the electric telegraph became a practical instrument, soon adopted on all the railway lines of the country.

It was the European optical telegraph, or semaphore, that was the predecessor of the electrical recording telegraph that changed the history of communication forever. Building on the success of the optical telegraph, Samuel F. B. Morse completed a working version of the electrical recording telegraph, which only required a single wire to send code of dots and dashes. At first, it was imagined that only a few highly skilled encoders would be able to use it but it soon became clear that many people could become proficient in Morse code. A system of lines strung on telegraph poles began to spread in Europe and America.

In the 1840s and 1850s several individuals proposed or advocated construction of a telegraph cable across the Atlantic Ocean, including Edward Thornton and Alonzo Jackman. At that time there was no material available for cable insulation and the first breakthrough came with the discovery of a rubber-like latex called gutta percha. Introduced to Britain in 1843, gutta percha is the gum of a tree native to the Malay Peninsula and Malaysia. After the failure of their first cable in 1850, the British brothers John and Jacob Brett laid a successful submarine cable from Dover to Calais in 1851. This used two layers of gutta percha insulation and an armoured outer layer. With thin wire and thick insulation, it floated and had to be weighed down with lead pipe.

In the case of first submarine-cable telegraphy, there was the limitation of knowledge of how its electrical properties were affected by water. The voltage which may be impressed on the cable was limited to a definite value. Moreover, for certain reasons, the cable had an impedance associated with it at the sending end which could make the voltage on the cable differ from the voltage applied to the sending-end apparatus. In fact, the cable was too big for a single boat, so two had to start in the middle of the Atlantic, join their cables and sail in opposite directions. Amazingly, the first official telegram to pass between two continents was a letter of congratulation from Queen Victoria of the United Kingdom to the President of the United States, James Buchanan, on August 16, 1 858. However, signal quality declined rapidly, slowing transmission to an almost unusable speed and the cable was destroyed the following month.

In boxes 1-6 on your answer sheet, write

TRUE *if the statement agrees with the information*
FALSE *if the statement contradicts the information*
NOT GIVEN *if there is no information on this*

1. In the research of the French scientist, metal lines were used to send messages.
2. People increasingly hoped to explore ways of long-distance communication in the late eighteenth century.
3. Using Morse Code to send message needed special personnel to first simplify the message.
4. Morse was a famous inventor before he invented the code.
5. Water was significant to early telegraph repeater stations on the continent.
6. The Australian Government offered funds for the first overland line across the continent.

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