

READING PASSAGE 1

You should spend about 20 minutes on **Questions 1-13**, which are based on Reading Passage 1 below.

How the first trans-Atlantic telegraph cable was laid

On August 16, 1858, the first telegraphic message crossed the Atlantic Ocean. Travelling along a recently laid cable, the message from Britain's Queen Victoria to US President James Buchanan took just 16 hours. Prior to this, communication across the Atlantic would have been by ship – and taken around 10 days.

People had been communicating via overland telegraph since 1844 and messages had been passing between Britain and France since 1850 when the first submarine cable was laid in the English Channel. But the attempt to span the Atlantic Ocean was the most daring attempt yet – and was the talk of the age, the 19th-century equivalent of the Apollo space mission. The idea that one could seemingly cheat time and space was inspiring and it changed the way people thought about the world and their place in it.

The driving force behind the trans-Atlantic telegraph cable was an American businessman called Cyrus Field. In 1856, he and Englishmen John Watkins Brett and Charles Tilson Bright formed the Atlantic Telegraph company. They raised £350,000 mostly from businessmen in London, Liverpool, Manchester and Glasgow. They also secured £14,000 annually from the British government plus the loan of ships and a similar amount from the US government.

Getting the cable made proved to be difficult. The distance between the west coast of Ireland and Newfoundland is over 3,700km, and Field was unable to find a company that was capable of supplying the required cable in the desired time frame. As a result, two companies were engaged to fulfil the order. The cable had a core of seven copper wires down which the signal would pass. These were insulated with several layers of gutta-percha (a natural plastic made from tree sap) and then armoured with iron wire. When it was complete, the weight of the cable proved too great for any single ship. It was therefore loaded onto two: the British ship, HMS Agamemnon and the American ship, USS Niagara.

The first attempt to lay the cable began on August 5 1857 with both ships departing from the west coast of Ireland, near Ballycarbery Castle. The venture did not go according to plan. The cable snapped on the first day, but was recovered from the bottom and repaired. A few days later, mid-Atlantic, the cable snapped again, this time in water 3km deep. It was lost and the expedition abandoned.

The next summer in 1858 they tried again. On this expedition, the two great ships met mid- Atlantic, each carrying half the cable. The two ends were joined together and the ships sailed away from each other. The cable broke three times and each time they were

forced to start again. On July 29, with little hope of success, the cable was joined for the fourth time and the ships sailed for home. This time they succeeded. The cable was landed in Newfoundland on August 4 and in Ireland the following day. And a week or so later Queen Victoria sent that first trans-Atlantic message to President Buchanan.

The celebrations were tremendous. One US newspaper proclaimed:
New York has seldom seen a more complete holiday than that on September 1 1858, in celebration of the successful laying of the Atlantic cable. The enthusiasm of an entire nation was expressed in this jubilee of its metropolis, and the era of a closer connection with Europe was well ushered in by a day of genuine rejoicing and gaiety.

Celebrations were, however, short-lived: the cable performed badly and failed after just three weeks. The project was put on hold, but the concept had been proved possible. By 1865, further research had been carried out into the problems which had plagued the earlier cables. In addition, cables had been successfully laid in the Mediterranean and in the Persian Gulf. The cables that were used were better engineered, with thicker cores and better insulation allowing faster transmission speeds.

In 1865, Field incorporated a second company to raise enough funds to try again. He chartered the largest ship in the world at the time, the SS Great Eastern, which could carry the entire Atlantic cable. Huge salt-water tanks and other state-of-the-art machinery were fitted to ensure it remained in mint condition during its journey. All went well until, in heavy winds 1000km off the coast of Newfoundland, the cable rubbed on the side of the ship, snapped and plunged to the deep ocean floor.

Not one to quit, Field vowed to return the following year. This final 1866 expedition proved to be successful and the cable was put into commercial service on July 28. One month later, the 1865 cable was brought to the surface and repaired, providing a second Atlantic telegraph link.

The service had obvious and immediate impact. People in government were able to respond more swiftly to evolving situations. News travelled more quickly, which boosted trade on both sides of the Atlantic. It also had a profound effect on things such as family life and cultural ties. For example, it was no longer so difficult for immigrants in America to keep in touch with their families back home.

The roller-coaster of cable-laying highs and lows between 1857 and 1866 caught the imaginations of a generation the way the space race did in the 20th century. There was immense public interest in the endeavour and in telegraphy more generally. At the time, telegraphic science was reported widely in the newspapers and the fortunes of the telegraph companies were followed closely. Discussions of the pitfalls and solutions to spanning the Atlantic with cable became everyday topics of conversation, and endless articles in the newspapers ensured that the project stayed in people's thoughts.

Questions 1 – 6

Do the following statements agree with the information given in the text

In boxes 1 – 6 below, 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 Field failed to find a company that could produce all of the cable needed by the specified date.

2 HMS Agamemnon and USS Niagara set sail from different locations on August 5, 1857.

3 On the 1858 expedition, the cable broke three times because of a manufacturing fault.

4 The newspaper quoted in the passage disapproved of the enthusiasm that met the 1858 expedition.

5 Many articles appeared in the press between 1857 and 1866 about the science behind the telegraph.

6 Between 1857 and 1866, people talked about the problems related to the telegraph project on a regular basis.

Questions 7 – 13

Complete the notes below.

Choose **ONE WORD ONLY** from the text for each answer.

Write your answers in boxes 7 – 13 below.

The history of the trans-Atlantic telegraph

The first attempts to lay cable:

- the Atlantic Telegraph company was set up by Field, Brett and Bright in 1856
- the central wires of the cable were made of 7.....
- the cable was put onto two ships due to its 8.....
- the 1857 attempt failed
- the cable was successfully laid in 1858

Events between 1858 and 1866:

- celebrations were brief since problems emerged
- further research led to the cable's thickness and 9..... being improved
- Field set up another company to get the 10..... for another attempt
- the strong winds experienced by the SS Great Eastern led to the cable being lost
- the 1866 expedition was successful

The changes the trans-Atlantic telegraph brought about:

- members of the 11..... could react more quickly to events
- news could be relayed faster, thus improving 12.....
- it became easier for US 13.....
- to maintain contact with their families