

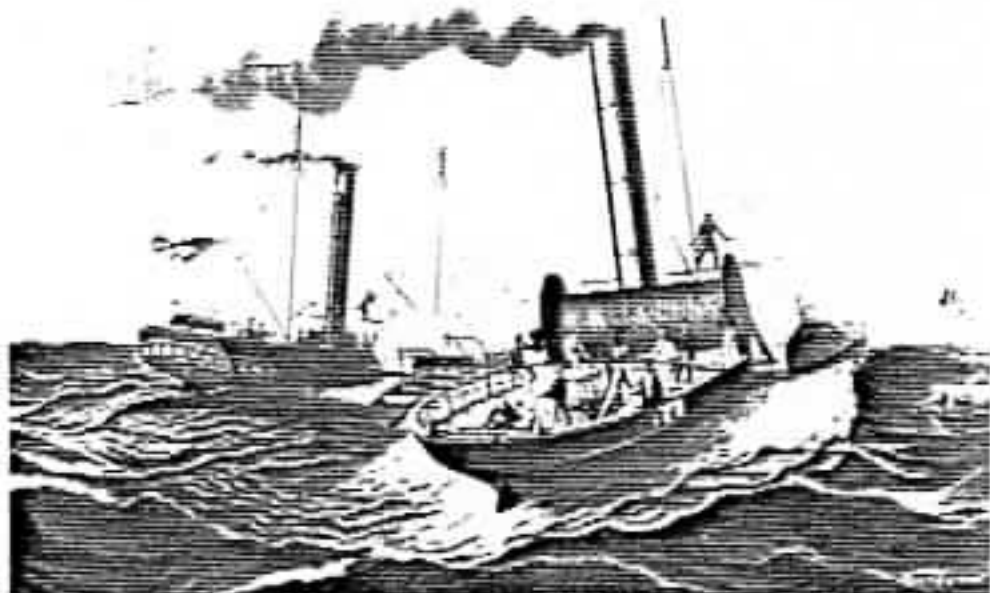
## THE EARLY STRUGGLE FOR COMMUNICATION

It is said that "Necessity is the Mother of Invention" and this may well be true, for the 19th Century opened with the UK having struggled through the Industrial Revolution to become the leading manufacturer in the World. The spread of the railways demanded a more reliable communication system, and on the 12-June-1837 Messrs Wheatstone & Cooke were granted the patent that led to the setting up of the first practical electric signalling system in the UK.

Within ten years this workshop of the World had evolved a complex network of telegraph lines and stations, unhappily, there was one drawback, they stopped at the water's edge! The brothers Jacob, and John Watkins Brett tried to overcome this obstacle and laid a cable between England (Dover) and France (Calais) on 28-Aug-1850; and though it worked for only a short time, it did show the possibilities. A year later they laid another, stronger, cable which was successful and worked for many years. Now that it had been shown possible to lay submarine telegraph cables, several companies were formed with the intention of connecting the UK to many European countries, and the dream was born "Why not cable from the UK to the USA?" Only twenty one years after the first patent had been granted to Messrs. Wheatstone and Cooke the first attempt was made to lay the first submarine telegraph cable from the UK to the USA. It was an epic failure. The knowledge gained from this and later attempts led to the first successful cable in 1866.

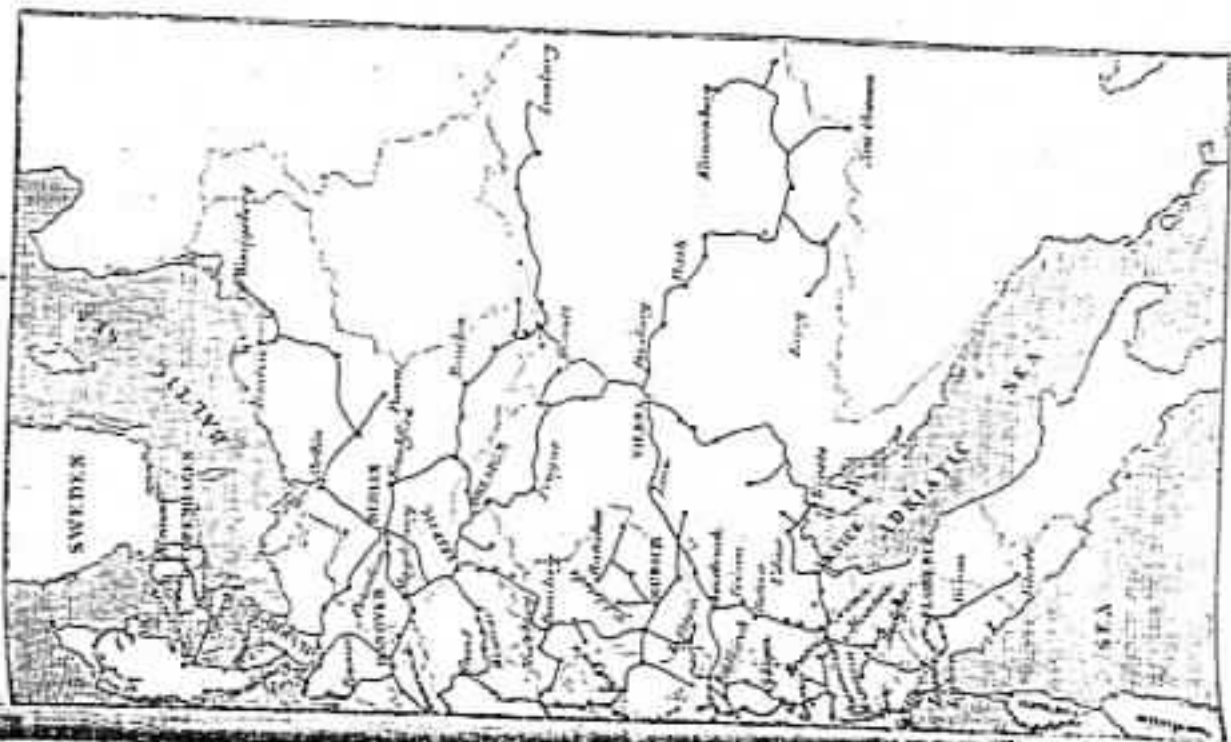
The rush to satisfy the desperate need for communications changed maps almost overnight. Telegraph routes were rapidly built and the knowledge on how to construct reliable submarine cables was found empirically, and a map of 1854 shows Europe a mass of telegraph lines and the first few submarine cables marked.

Submarine cables of various designs were being laid by the newly formed companies but either the cables were not strong enough for the seas in which they were laid, or made in such a manner that they failed soon after being laid. A British Government Committee of Enquiry was set up to examine all submarine cable manufacture and all cable laying machinery. This published a report in 1861 which was described over 40 years later as the most valuable collection of facts, warnings, and evidence ever compiled regarding submarine cables. Indeed, the manufacture of submarine cables and submarine cable laying procedures which followed the report's recommendations did not materially change till the late 1930s when man-made materials began to appear. This report mentioning machinery used on cable ships and the development of such machinery is really the life story of the paddle steamer *Monarch*. She was bought

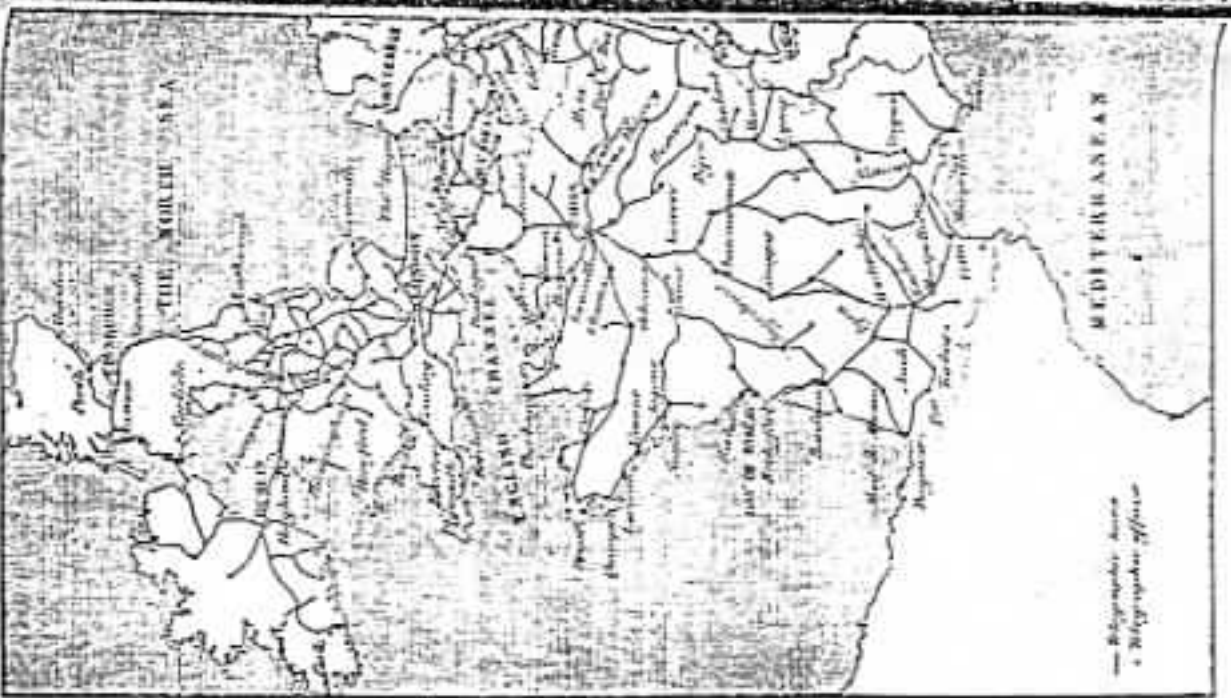


◀ Laying the first submarine cable Dover-Cap Grisnez 28 August 1850

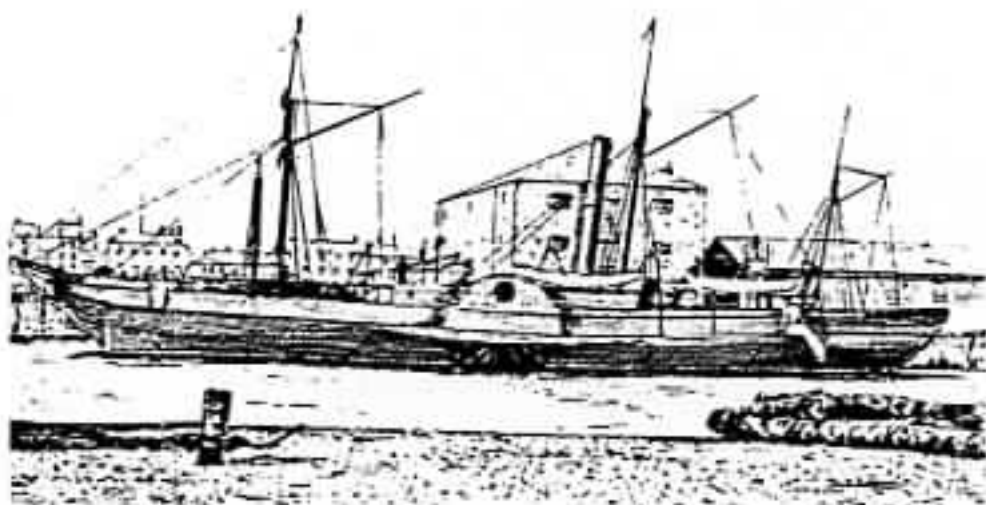
AT WHICH EUROPE WAS OVERVIEWED AT THE CLOSE  
OF THE YEAR 1854.



TELEGRAPHIC MAP.—In this annexed Map is exhibited  
a General View of the Telegraphic Network



MAP. I.



◀ Search of Monarch by  
Mr D. Lumsden ▶

at Hull by the International Telegraph Company on the 14-May-1853 from Messrs Brownlow & Pearson for £6,250. She had been built in 1830 and was about 500 tons deadweight.

During the next four years the Monarch was constantly in use, often on charter, and frequently engaged on repairing the Hague cables. Mr. F. C. Webb designed various aids for this work including specialised buoys, mushroom anchors, bridles, etc. finally leaving this Company late in 1857. In 1858 the picking up gear was changed to that designed by Sir Charles Bright for the Atlantic Telegraph Company, only to be replaced by one designed by Prof. Fleeming Jenkin and this machinery remained in use to the end of her days. The bow sheaves were larger than before being 5 ft. in diameter and were deeply grooved. Each bow sheave had an idler wheel to run on top of the cable to stop them rising out of the grooves due to the up and down motion of the bows in rough seas.

The procedure for cable recovery (for clearing faults) was to lower a grapnel in the vicinity of the faulty cable and steam across the line of the cable until it was hooked. The cable was then carefully pulled up to the bows of the ship, a boat was lowered so that men could work from the boat, fastening rope stoppers to the cable either side of the grapnel. The cable was cut between these stoppers and the ends of the cable pulled aboard for testing. This boat work was dangerous as often the paddle wheels were kept moving slowly to counter the movement of the tide and keep the ship

in a stationary position so avoiding any strain on the cable. In 1855 a man fell into the sea from the boat and was killed under the port paddlewheel, after this, the standard procedure was to lower men from the bows in bosun chairs to fasten the stoppers on the cable, and to cut the cable.

However well the submarine cable staff worked all was not well with their business. It is true that the established companies were making a profit but the public and indeed the commercial world were not satisfied. There were many things wrong, the various companies were not working together for the common good but in competition with each other. Where messages had to pass along routes owned by different companies, each company gave preference to messages originated in their own offices and any other company's messages had to wait (sometimes they were even held over till the next day by spiteful office superintendents). Actually, the repetition of messages from one office to another produced garbled messages at the terminal office due to poor operating, misunderstood signals etc. The government had attempted to control the profits of the telegraph companies by having a standard charging rate but in July 1865 these companies acted together to withdraw the standard rate of 1/- per 20 words and charged higher rates to suit themselves. To keep their business profitable telegraph offices were only opened at points where a profit could easily be made, this left large areas of the countryside with no telegraph facilities. Slowly the clamour for the Government to take over the telegraphs

grew (doubtless encouraged by the success the P.O. had made of the Postal System with its new 1d. post and its general availability). In 1868 the reconstructed Government under Mr. Disraeli acted in response to this clamour, and on 1-April-1868 the new Chancellor, Ward Hunt, introduced the Telegraph Bill to enable the Postmaster General to "...acquire, maintain, and work the electric telegraph in the U.K.". With the support of both sides of the House the Bill passed through its final stages and became law on 31-July-1868, the actual date of transfer was fixed at the time as 28-Jan-1870.

The new owners of the Monarch now needed a berth for their ship Monarch near a railhead with facilities for handling and storage of submarine cables. It also had to be near the cable terminating point on the coast, to limit time spent travelling to a fault, etc. The site selected was Lowestoft on the Suffolk coast, where there was spare land on the northern side of the Harbour. In later years it was found to have a serious drawback, any cables larger than the Monarch had great difficulty in loading or unloading cable, and we read of barges having to take cable out to ships anchored outside the Harbour. In 1870 this ship and its depot was to pass into the hands of the Post Office. A telegraph office had been established in the Harbour buildings with Mr. Thomas F. Wilings as Clerk-in-charge when the International Telegraph Co. first opened this Depot.

On 29-Sept-1853 the International Telegraph Co. appointed Mr. Edwin Clarke as Engineer with a salary of £400 per annum, and Mr. F. C. Webb as his assistant with a salary of £300 per annum. It is from the written memoirs of the latter that we learn so much of the early years of the Monarch.

The first task of the Monarch was to be the laying of the Orford Ness-Scheveningham cables, known as the Hague cables. The cabling contract was with Messrs R. S. Newall & Co. and they fitted the first cable paying out machinery to the Monarch, this consisted of a large drum with a wooden brake shoe acting directly on the drum. To keep the cable in its desired position on the drum, a fleeting knife (a metal guide held against the face of the drum) for

this purpose was designed by Mr. Newall. After the first three Hague cables had been laid, the drum was replaced by an improved type designed by Messrs Clarke and Webb. This new machinery consisted of a single drum with an improved brake and again a fleeting knife but with three rollers to form a feed guide for the cable.

The first break in the Hague cables occurred on the No. 1. cable on the 17-Aug-1853. Mr. Webb tested from Orford Ness the next day and made the fault close to the Dutch Coast. He started out to clear the fault on the 20-Aug-1853 from Blackwall in the tug "Copeland" (Paddlewheeler) with Mr. Oliver (Mate of the Monarch), Mr. Windle from the "Gutta Percha Company" as gutta percha joiner, and Mr. Bruce from "Glass & Elliot" as splicer. (Note. Mr. Windle became joiner in the Monarch and later Foreman. In the early 1870s he left the Post Office and joined the Telegraph Maintenance & Construction Co.). They arrived at the Dutch Coast and found the cable cut in two just outside the shore end off Scheveningen. The fault was cleared during daylight hours the next day.

Early in 1854 the Monarch was chartered by Messrs R. S. Newall & Co. to pick up the Donaghadee-Port Patric cable which had been laid short of the shore. This firm installed its own design of picking up gear for the cable which consisted of two grooved drums geared together by a pinion, and a bow sheave between baulks of timber. After this charter, Mr. Webb designed picking up gear of an improved design which was made and fitted to the ship. This had a ratchet and was worked by manual power, long handles were fitted on each side of the driving shaft to bearings on the gunwales of the ship, and thus about 30 men could be applied to it. Later steam power was used when a 4 1/2 h.p. engine was installed.