one of the signs exhibited, will convey an idea of Dr Hooke’s telegraph.

Monsieur Amantona, of the Royal Academy of Paris, made an experiment to convey intelligence, which was highly approved of by the other members, and several per­sons of distinction belonging to the court. By the descrip­tion given of the machine, it seems to have differed very little from that of Hooke already published in the Phi­losophical Transactions; the signals being either large let­ters of the alphabet, or figures of various shapes to re­present them ; the latter being the more valuable, as, by a change of key, the nature of the communication might be kept a secret from those actually employed in making the signals.

lt has been supposed that electricity might be the means of conveying intelligence, by passing given numbers of sparks through an insulated wire in given spaces of time. A gentleman of the name of Ronalds has written a small treatise on the subject ; and several persons on the Conti­nent and in England have made experiments on Galvanic or Voltaic telegraphs, by passing the stream through wires in metal pipes to the two extremities or stations, into phials of water ; but there is reason to think that, ingenious as the experiments are, they are not likely ever to become practi­cally useful. Since this was written, Professor Wheatstone has succeeded in contriving a Galvanic telegraph that works admirably, and will no doubt be applied to all the great lines of rail-road in the kingdom. It is simple in its con­struction, not liable to error, very portable, and carries round the margin of a circle the letters of the whole alpha­bet in rapid succession, so that each word is speedily con­veyed to any distance.

Necessity is said to be the mother of invention ; she is also frequently the foster-mother, who calls forth into ac­tion, and displays the utility of, inventions abandoned by their natural parent. Both Hooke’s invention and Amantons’ modification were published all over Europe, the for­mer as early as 1684; yet they were not practically applied to any useful purpose till the year 1794, when Citizen Bar- τere, in a report made to the Convention, ascribed the in­vention then in use to Citizen Chappe.

Chappe’s telegraph consists of a beam of wood, moveable on a pivot at the summit of an upright post. At each of the extremities of this beam is a moveable arm, as in the figure. The different positions in which both the beam and its two arms may be placed at angles of 45° give to this tele­graph considerable powers ; but it is too complicated a machine not to be liable to many mistakes, unless worked by long- experienced operators.

In the year 1784, Mr Lovell Edgeworth produced his plan of a numerical telegraph, claiming, at the same time, the merit of having invented a mode of distant communi­cation as far back as 1767, by employing a common wind-mill, and arranging the various positions of its arms and sails so as to represent a certain number of signals arranged in numerical order.

Mr Edgeworth’s telegraph consisted of four wedges or cones, moveable on four upright posts, as under, which, by their different positions, might be used either numerically or alphabetically.

In the year 1795, when the advantages had been made evi­dent which the French derived from Μ. Chappe’s telegraph, the inventive faculties of our countrymen were called into action. Among other pro­posals, the Rev. J. Gamble produced two plans of a tele­graph ; the une consisting of five boards, one above the

other, which, by opening and shutting singly, or according to all the combinations of which they were capable, gave a certain num­ber of distinct signals, representing either numbers or letters, as might be deemed most expedient. The arrangement of the shutters was as in this figure. The other plan was that of five beams of wood, turn­ing on the summit of a post, so as to form five radii of a semicircle at equal angles of 45° with each other, as in the annexed figure.

Among other projects about this time, was that of dividing a large circle into twenty-four parts, to represent the letters of the alphabet, round which a moveable radius was to traverse ; then, by placing corresponding divisions, by means of wires, before the object-glass of the telescope, the co­incidence of the two radii would mark out the letter meant to be designated. Of this kind, a plan by Mr Garnet ap­proached nearest to efficiency ; but, at best, could only be applied to very short distances.

In the same year (1795) Lord George Murray present­ed his plan of a six-shutter telegraph to the Admiralty, which was the one adopted and made use of during the whole war, and until the year 1816, when it was changed for a simplified semaphore, which will be noticed hereafter. The annexed figure re­presents that of Lord George Murray.

On the same principle as the radiated telegraph of Mr Gamble, but differently ar­ranged, the French, on the commencement of the second war in 1803, erected signal-posts along the coast, to which they gave the name of semaphores, being two or three beams of wood on the same post, but turning on different pivots.

In 1807, Captain (now Colonel) Pasley published his *Polygrammatic Telegraph,* which differed only from the French semaphore in having two beams turning on one pivot on the same post, and multiplying the number of posts ; which he afterwards (in 1810) changed so far as to place three sets of beams or arms, two in each set, on one post, and thus approaching still nearer to the French se­maphore.