“Water Railways”

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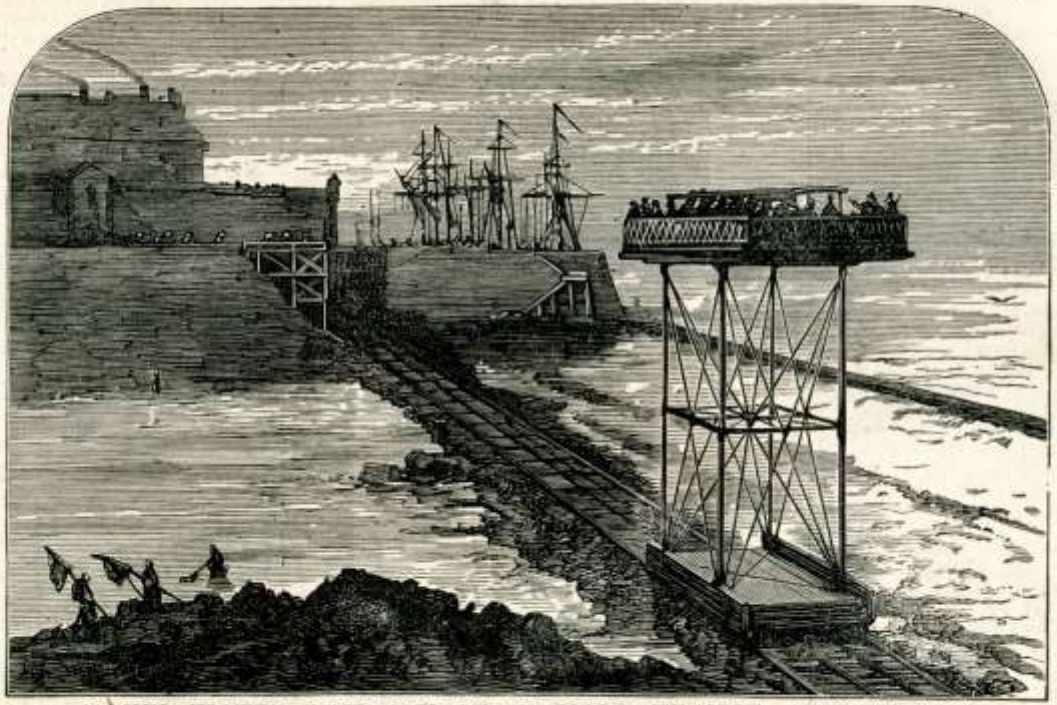
WATER RAILWAYS.

AMONG the successful substitutes for bridges and tunnels for the conveyance of passengers across rivers and water channels, the plan of M. Leroyer, which has for several years past been in successful operation at St. Malo, France, deserves especial notice. We give herewith two illustrations thereof.

The towns of St. Servan and St. Malo, in France, are situated on either side of the river Ronce, or, more strictly, of the arm of the sea into which that river empties. The tide is here subject to great fluctuations, retreating so that the bed of the estuary may be crossed on foot, and again rising to a height of several yards. The mode of crossing the stream, until the construction of the curious railway represented in our engraving, consisted in taking a wide *détour* to a point where an ordinary bridge spanned the river, or else in using boats. To avoid such inconvenience as we have referred to, M. Leroyer, town surveyor of St. Malo and architect to St. Servan, designed and had constructed the railway we illustrate. It consists of a platform supported on wheels, which run on rails laid on the bottom of the estuary. The platform is supplied with accommodation for horses and vehicles at either side, and two classes are provided for passengers, the fares being one and two cents respectively. The platform stands level with the quay at each side, so that nothing is more easy than access to it; and, as our illustrations (from *L'Illustration*) show, it is worked at all states of the tide with perfect safety. One of the engravings represents the car travelling on its ways at low tide, and the other, crossing the river when the water is high.

This railway appears to be exceedingly popular with the inhabitants of St. Malo and St. Servan. It is novel in design, and reflects no small credit on M. Leroyer.



NOVEL WATER RAILWAY AT ST. MALO, FRANCE, AT LOW TIDE.

Mons. A. Mottier, of Paris, has designed a still more extensive adaptation of M. Leroyer's plan, to wit, the construction of a road-bed on this system, across the bed of the British Channel, between England and France. We give herewith two figures of the gigantic locomotive that he proproposes to employ, with the following particulars:

The bottom of the English Channel is comparatively level; the depth of water about 130 ft. The line proposed is from Sangatte to Deal. It is proposed to raise a causeway of some 33 ft. in height, and 13 ft. in width. On this it is proposed to run a vehicle 330 ft. in length, 125 ft. wide and 125 ft. high, and composed of a pontoon at the base, and a platform above the water, united by suitable framing; the bulk and weight so calculated as to throw no weight on the wheels, which are to be 80 ft. in diameter.

The platform is to be large enough to take an entire railway train on board. The machine is to be propelled by an engine located on the platform, which by means of a chain belt operates a drum, over which winds a chain that lies upon the roadway; being much the same manner that the Belgian canal boats are propelled.

M. Mottier makes the following estimate of the expense:

For the causeway	$800,000
" vehicle	1,200,000
" contingencies	400,000
Total	$2,400,000

His estimate of the receipts is based upon twenty trips per diem, each bringing in say $400, or $16,000 per diem; certainly a liberal enough estimate.

THE FASTEST STEAM YACHT IN THE WORLD.

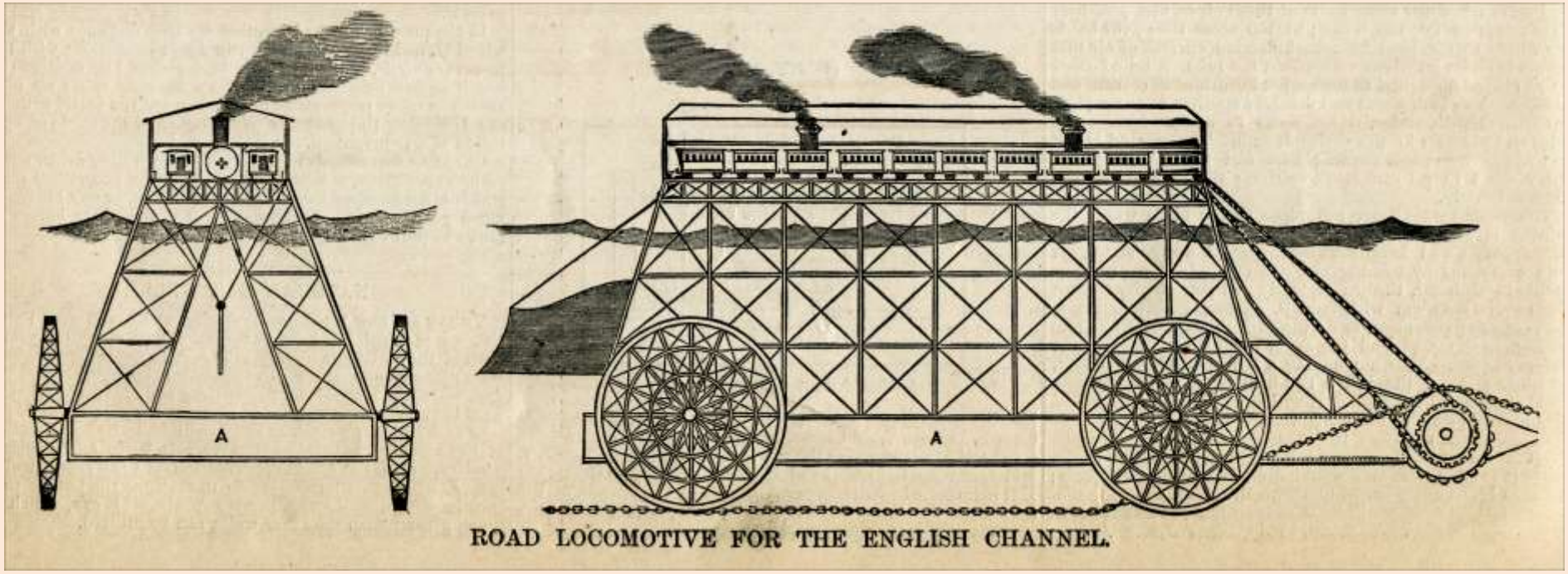
CONSIDERABLE interest has lately been excited at Geneva by the trial of a new steam yacht, built for the Baroness Adolphe de Rothschild. This vessel, although only 91 feet long by 13½ feet beam, just large enough to contain the accommodation for a day's comfortable cruising on the lake, has attained and kept up a speed greater than that of any ocean steamer afloat, and only equalled, perhaps, by some of the largest American river steamers. The Gitana is rigged as a fore-and-aft schooner, and is built of steel. The accommodation on board the Gitana consists of a large saloon, pantry, and dressing-room forward, and a galley cabin for the crew and store room aft of the engines. The engines are compound direct-acting, fitted with an injection condenser, and with a view to reducing vibration as much as possible were made with three cylinders acting on cranks set 120° apart. The high-pressure cylinder is 13½ inches in diameter by 16 inches stroke, and the two low-pressure cylinders are each 15 inches in diameter by 16 inches stroke. The boiler is of the locomotive type, of Bessemer steel, with a copper fire box and brass tubes. The speed guaranteed was eighteen English statute miles per hour in a run of two hours' duration—that is, thirty-six English statute miles in two hours, subject, in the event of failure, to the yacht being thrown on the builders' hands; and, as high speed was to be one of the principal attractions in the yacht, the Baroness Rothschild agreed to pay a premium on each mile above thirty-six run in the two hours. As there is no way by which the yacht could be taken to Geneva complete, the Rhine being too rocky and rapid, and the yacht being too large for conveyance entire by rail, it was necessary to build her at Chiswick, take her to pieces, and send her, packed in boxes, to Geneva by rail. She was then erected at La Bellote, on the shores of the lake, by workmen sent from England. The trial was made on the 21st of September, the Baroness Rothschild and Lady Emily Peel being on board, and having as scientific advisers Messrs. Paul Carrié and Emile Sicard, French engineers. The distance between Geneva and Villeneuve, forty-three English miles, was run in 1 h. 48 min. 22 s., being at the rate of 23.89 English statute miles, or very nearly 20¾ knots per hour. During the first 20 miles a light head-wind and some waves were encoun-

(photo caption) "Novel water railway at St. Malo, France, at low tide."

tered, which reduced the speed somewhat, but during the remainder of the run the lake was quite smooth; the boiler pressure averaged 100 pounds per square inch, vacuum twenty-four inches, and the engines made from 300 to 325 revolutions per minute, and developed about 450 indicated horse-power. At the conclusion of the trial the Baroness Rothschild expressed her entire satisfaction with the yacht and her performance.—*London Times.*

NOVEL WATER RAILWAY AT ST. MALO, FRANCE, AT HIGH TIDE.

(photo caption) "Novel water railway at St. Malo, France, at high tide."



(photo caption) "Road locomotive for the English Channel."