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American Car Ferries.

By Waldon Fawcett.

There would appear to be but small doubt that the car ferry, at least in anything approaching its present form, is an American invention, & certainly the process of development through which it has passed during the past few years has resulted in the evolution of a singular type of craft. Car ferries may, perhaps, be best described as connecting links in railway systems crossing stretches of water so expansive that to bridge them would be either impracticable or very costly. In appearance they are suggestive of the flat-bottomed boat, being somewhat tub-like, in order that space may be provided on the main deck for the storage of the greatest possible number of railroad cars.

In size the car ferries in service in American waters range all the way from the small ferry steamers in service on some rivers, & which mayhap have not room for more than one or two cars, to the immense vessels built especially for this work which are in commission the year round on the Great Lakes & are capable of transporting at one time nearly three dozen loaded freight cars. The car ferries in the great fleet now in service in America include both steamers & barges or floats, which having no power of their own, must be towed either by tugs or car ferry steamers. Some of the vessels have only a single railroad track down the centre of the deck, while others have 4 tracks abreast, each only a little short of 300 ft. in length.

The greatest interest attaches to the car ferries on the Great Lakes, not because they are the largest & most powerful in the country, as from the fact that they have been constructed especially for ice-breaking, in order that communication might be maintained throughout the winter on the frozen inland seas. They served as the models for the great ice-fighting steamers which the Czar's government has had constructed at great expense during the past few years in order to keep open some of the more important Russian ports heretofore closed to navigation during many months of the year. The Russian engineers visited the Great Lakes in the dead of winter & studied the operation of the car ferries, & the Detroit naval architect, who designed most of the American vessels, was later summoned to St. Petersburg for the purpose of consultation.

The car ferry of ice-crushing propensities is, it may be noted, a comparatively recent acquisition even in this country. Until some 15 years ago the railways having termini at ports on the Great Lakes were dependent solely upon iron-shod ferry-boats. At some places, as for instance at Detroit, where the cars need to be ferried only across a river with a fairly swift-running current, little difficulty was encountered by these vessels in keeping communication open, but farther north, at the Straits of Mackinaw & in other localities where there is a considerable expanse of open water, it was frequently found impossible to keep a path open through the ice fields, & the interruptions of freight & passenger traffic which resulted were both annoying & expensive to the railway companies. The idea of the ice-breaking car ferry steamer, as at present constructed, was discovered purely by accident by a party of railway officials & shipbuilders who stood, one day, watching one of the old-fashioned ferry-boats backing away from an ice-bound wharf. As the vessel made successive trips back & forth across the river, it was noted that she made her way against the ice better when going astern than when steaming forward in the usual way. To an engineer who was present this circumstance suggested grave possibilities, & he undertook experiments immediately thereafter, with the result that he discovered that a disrupting influence of considerable magnitude was exerted upon the ice by the disturbance of the water due to the rapid revolutions of the propeller wheel.

The outcome of the matter was the submission of a proposition for the construction of a car ferry steamer fitted with a screw propeller at each end. It was argued that, thus equipped, a vessel would not only have the requisite force to drive her forward at the speed required, but would also be provided with a weapon which could be used effectively against ice of great thickness. How meagre, however, was the original conception of the magnitude of the project may be imagined from the fact that whereas $75,000 was the original estimate of the cost of such a vessel, it was found when it came to placing the contract that the expenditure would necessarily exceed $285,000.

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Three of the principal railways in Michigan made the construction of the vessel a joint project, & in 1888 the St. Ignace, as she was called, went into service between Mackinaw City & St. Ignace, a distance of eight miles, & henceforth passenger & freight trains were transferred complete between these two ports. The St. Ignace was 235 ft. in length, 52 ft. beam, & of 1,200 tons burden. The slanting prow, which had been a distinctive characteristic of the old-fashioned car ferries, was retained in the new boat. It aided in the crushing, a work which was, of course, rendered all the easier by the action of the forward propeller in sucking the water from under the frozen field.

After half a dozen years of efficient service the St. Ignace was found to be incapable of accommodating the increasing railway traffic, & there was constructed, at a cost of some $750,000, that powerful ice-breaking ferry steamer the Sainte Marie, which weighs upward of 6,000,000 pounds & plows her way through ice several feet in thickness. The Sainte Marie is 305 ft. in length & 53 ft. beam. The hull below the water-line is of the heaviest oak construction, sheathed with ¼-in. steel, & the vessel is fitted with engines of 4,500 h.p.

Probably the most remarkable car ferry steamer on this continent, if not in the world, is the Pere Marquette, which is operated between Ludington, Mich., & Manitowoc., Wis., & which has succeeded in keeping navigation open on her 56-mile route across Lake Michigan during the severest winters of the past decade. This vessel is 350 ft. in length, 56 in breadth, & 36 deep. She displaces over 4,000 tons on a draught of 12 ft., & her usual cargo consists of 30 loaded freight cars. When the Pere Marquette went into dry dock for repairs in the autumn of 1899, she had travelled more than 40,000 miles without any attention from the refitters, & when it is explained that much of this service had been at a speed of 10 miles an hour