

Correspondence.

The Truth About Dr. Lardner and the Transatlantic Steamship.

To the Editor of the SCIENTIFIC AMERICAN:

My attention has been drawn to some remarks that appeared in your valuable periodical, rather a long time ago, for they were in the number of January 11, 1902, on the subject of first iron vessel in Great Britain. The writer of these observations asserts that absurd as it now appears, Dr. Lardner, a scientific authority, declared that the idea of an iron ship was perfectly chimerical, and that there was about as much chance of an iron boat reaching New York from Europe as there was of its voyage to the moon. The assertion is no doubt a variation of a story that has been repeatedly told and as often contradicted. The story, as generally told, has no basis in fact, and this particular variation is even more improbable. A false statement, particularly if it affect the reputation of any one, it is well known, dies hard, but perhaps you will permit me to attempt to kill this one.

Only a few years ago (1897) Lord Hopetoun, in his presidential address to the Institution of Naval Architects, repeated the story in its usual form, which is that Dr. Lardner had expressed the opinion that steam navigation across the Atlantic was impossible. On July 16 of the same year he was hauled over the coals in the columns of The Engineer, by an able writer, whose name I do not know. A whole column or more was devoted to the vindication of Dr. Lardner, and the opinion was expressed that it was important to settle this story once for all and to prevent the variant versions flattering to the ignorant mind being handed down from age to age in company with similar facetious anecdotes, applied with much sameness to the eminent philosophers of every time.

A year, however, before this article appeared in The Engineer, the subject came up in a discussion at the Royal Colonial Institute meeting on June 9, 1896, when the Marquess of Lorne was in the chair. Sir Sandford Fleming, K.C.M.G., then Mr. Fleming, in reading a paper on "Canada and Ocean Highways," repeated the unfounded story of Dr. Lardner's opinion that transatlantic steam navigation was impossible. It so happens that Mr. W. G. Lardner, a grandson of Dr. Dionysius Lardner, is a fellow of the Royal Colonial Institute, and as such had a slip copy of the paper to be read sent to him beforehand. He invited his father, Commissary-General G. D. Lardner, F.R.A.S. (since dead), to attend the meeting and vindicate Dr. Lardner's memory. This he did in the discussion that followed the reading of the paper, in the following words:

"My object in rising is to give an explanation of a somewhat personal character in reference to an allusion made by Mr. Fleming to a gentleman, deceased forty years ago, whom I had the honor to call my father. In the course of his admirable paper, Mr. Fleming alludes to the general belief that Dr. Lardner, in lecturing at Liverpool in the year 1835, had declared that a voyage by steamship to the American continent from Europe was perfectly chimerical, and that people might as well talk of making a voyage to the moon. Probably Mr. Fleming is not aware that this supposed declaration originated in an erroneous press report, and was at once and at the time contradicted by Dr. Lardner, who set forth in unanswerable language, not only what he meant to say, but what he actually did say. This disclaimer was republished in the last edition of his work, 'The Steam Engine' (eighth edition, 1851), as the following extracts will show. In the preface to this work Dr. Lardner wrote:

"In the third chapter of the second part will be found a review of the progress of steam navigation from its first establishment in 1812 to the present day. This chapter also contains the refutation of those absurd reports which have been generally circulated, imputing to the author opinions as to the impossibility of the Atlantic voyage, which are precisely the reverse of those he really expressed."

"At page 295 of the above work is a report from the Times of Dr. Lardner's speech at the meeting of the British Association at Bristol on August 25, 1836. From that report, which appeared in the Times August 27, 1836, I extract the following:

"... He (Dr. Lardner) was aware that since the question had arisen, it had been stated that his own opinion was averse to it. This statement was totally wrong."

"After some observations from Messrs. Brunel and Field, Dr. Lardner in reply said that 'he considered the voyage practicable, but wished to point out that which would remove the possibility of a doubt, because if the first attempt failed it would cast a damp upon the enterprise and prevent a repetition of the attempt. What he did affirm and maintain was that the long sea voyages by steam which were contemplated could not be maintained with the regularity and certainty, which are indispensable to commercial success, by any

revenue which could be expected from traffic alone; and that, without a government subsidy of a considerable amount, such lines of steamers, although they might be started, could not be permanently maintained."

"Nevertheless the charge has been brought up again and again, and has been reproduced in public places for no other conceivable motive than perhaps to point an imaginary moral, or adorn a sensational statement."

Referring in 1851 to his own prophetic words of 1836, Dr. Lardner wrote:

"Thus it appears that after a lapse of nearly fourteen years, notwithstanding the great improvement in steam navigation, the project advanced at Bristol and there pronounced by me commercially impracticable, signally failed."

As pointed out by the writer of this article in The Engineer, the commercial inferiority of steamships to sailing clippers as cargo boats continued till the advent of the compound principle in marine engineering.

Whether the republication of the above facts will prevent the repetition of the absurd stories in circulation as to Dr. Lardner's opinions on the subject, I am doubtful, so convenient are these depreciatory inventions about great men of the past to flatter the superior intelligence of small men of the present; but, at any rate, as you have unwittingly given prominence to this untrue story, I am sure you will, in justice to the memory of so distinguished a man of science as Dr. Dionysius Lardner, permit me, even at some length, to make known its entire want of foundation.

ROBT. H. VETCH,
Colonel, Royal Engineers.

London, December 1, 1903.

Nordmann and the Aurora Borealis.

To the Editor of the SCIENTIFIC AMERICAN:

In your issue of December 5 is an article "An Electromagnetic Theory of the Aurora Borealis." Without going into any discussion or criticism of Mr. Nordmann's magnetic theory, I desire to state a few facts in regard to the phenomenon, which I have personally observed in Sweden.

1. "Northern Lights," Aurora Borealis, occurs at its best during the autumn season.

2. Sometimes it appears as a steady light, seemingly emanating from far behind the northern horizon.

3. At other times it appears as if emanating from above the clouds at the northern horizon. Usually the rays appear in groups, changing in dimension and moving to and fro from one side of the sky to the other.

4. Sometimes, but not very often, the Aurora Borealis extends back to the zenith in Ostergötland, and even south of that province. This was most marked, as I can remember, about the year 1871. When the Aurora Borealis seems to emanate from right overhead, then the temperature is at first unusually warm and the air calm. But after a short time small whirlwinds arise, some of them warm and some cold, and the air begins to circulate. Some of the small scattered clouds in the sky can be seen moving up and down, and there is even a little thunder and lightning; but gradually the wind increases and takes a more steady direction.

From these facts I have concluded that the Aurora Borealis is a thermo-electrical phenomenon.

O. T. NILSSON.

Rockford, Ill., December 26, 1903.

Strength of Railroad Cars.

To the Editor of the SCIENTIFIC AMERICAN:

Being a regular reader of your publication, the SCIENTIFIC AMERICAN, I have noticed at various times in your valuable columns articles advocating the use of fireproof railway cars, especially electric railway cars. I think in view of the recent awful disaster at Dawson, Pa., if through your editorial columns you advocate wreck-proof cars you would do great humanitarian benefit, for your paper has great weight.

It seems to me that if each of the great railways of this continent would subscribe say \$500 or so, very extensive experiments and tests could be made of full-sized models of passenger cars to determine the best and yet economical construction of such cars to withstand collision, rolling down embankments, fire, etc. These tests could be made by allowing cars to descend a slope on some narrow-gauge railway. The speed, momentum, force of impact could be calculated to a nicety. A test of these small cars would give just as valuable information as of larger models.

There may have been such tests made. I have not heard or read of any, however, although I am interested in engineering, being an assistant engineer in the Department of Public Works of Canada, and at the Engineers' Club of Toronto see a number of technical journals.

Toronto, Canada.

[Our correspondent will find the answer to his suggestion in the announcement of the Pullman Company, given in our editorial columns, that they carried over

thirty-two million people with only ten casualties. The relative behavior of Pullmans and day coaches in railroad wrecks gives us all the data we require.—ED.]

Engineering Notes.

Ex-Mayor Adam H. Leader, of Reading, Pa., is the inventor of four different styles of gasoline engines, the last one of which is supplied with a number of novel features. It requires no tank for the gasoline, the latter being pumped automatically from the base of the engine into the receiver at the top, from which the cylinder is fed. The engine is operated at any angle, and has a new style of igniter, which is said to be superior to any of those now in use. A four-horsepower engine stands 4 feet in height and weighs 650 pounds. Mr. Leader says that the engine is particularly suited for driving a dynamo or for general work on a farm. The cost of running the engine is said to be one cent an hour per horse power.

An entirely new method of constructing underground conduits was recently demonstrated in Neasden, England. A number of lengths of iron pipes were laid in a trench and blocked up a few inches above the bottom. These pipes were about four feet in length, and were joined together in such a manner that the exterior represented an unobstructed surface. The pipes were coated with a composition of paraffine and graphite to the thickness of about one-quarter of an inch. The line was then covered with cement, and after the cement had hardened, a jet of steam was turned into the interior, heating the metal and melting the composition on the outside, which makes the withdrawal of the line of pipe a comparatively easy matter. The inside of the conduit is left covered with a coating which acts as an excellent lubricant, which greatly facilitates the passage of wire and cables through it. The cost of a conduit of this character is given as from twenty-five to thirty cents per yard.

The introduction of blue-prints into the United States was not such a rapid process as the present universal adoption of this method of copying tracings might indicate. The first prints of this nature shown in the country were part of an exhibit in the Swiss section of the Centennial Exposition, and it was stated by one of the gentlemen in charge of that exhibit that the process had but recently been introduced into Switzerland from Germany. Mr. Rudolph Hering was requested to prepare an article for the Proceedings of the American Society of Civil Engineers on the Swiss display, and came across these prints while engaged on this work. He obtained a copy of the formula for the solution, and after some trouble secured the ingredients and tried the process at his home; this was in 1876, and was probably the first case of blue-printing in the United States. He sought to interest the city engineer of Philadelphia in the process, but Mr. Smedley, who then held the office, refused because the operations would be too sloppy. Then he showed some of his prints to Dr. Coleman Sellers, but that eminent engineer refused to see anything good in them. Workmen, he said, were so accustomed to working from drawings in black ink on white or brown paper that the attempt to introduce drawings with white lines on a blue background would be the cause of serious trouble.

The Current Supplement.

The railway ferry steamers built by Schichau have attracted much attention of late. The current SUPPLEMENT, No. 1462, opens with a complete description of these vessels, illustrated by two excellent engravings. "Early Attempts at Submarine Navigation" is the title of an article which will probably be of interest to those who have followed the experiments recently conducted with the "Protector." Albert P. Sy continues his account of the stability tests of nitrocellulose and nitrocellulose powders. Prof. G. B. Howes presents the last installment of his paper on the "Morphological Method and Progress." Mr. Mark Bennett tells much that is interesting of landscape gardening at the Louisiana Purchase Exposition. Prof. Robert Montgomery Bird writes instructively on the theory of light emissions from a flame, and traces the development of that theory. From an engineering standpoint, the most important article of the SUPPLEMENT is that by Bion J. Arnold on "The Arnold Electro-Pneumatic Railway System; its Application and Experiments Therewith in Connection with the Lansing, St. Johns and St. Louis Railway." The paper is excellently illustrated with several engravings.

Prize for Boat-Raising Works.

The Austro-Hungarian Consul-General at New York city informs us that those who are interested in the competition instituted by the Austrian government for designs of boat-raising works to be used on the Donau-Oder Canal may receive full details by writing to the Imperial and Royal Austro-Hungarian Embassy, 1304 18th Street, Washington, D. C. A prize will be given for the best design.