

THE SAFEST SHIPS AFLOAT.

The safety and comfort of modern ocean travel as illustrated by the Canadian Pacific Railway Company's Ocean Steamships.

BY HENRY FRY.

THE Canadian Pacific Railway Company's ocean steamships are a credit alike to the builders, the owners, and the Dominion. They are, in every respect, a great advance on the ordinary screw steamship; so great that the public do not fully realize it. All three are exactly alike both in hull and engines. They were built by the Naval Construction and Armaments Company, of Barrow, under contract with the Canadian Pacific Railway Co., and were guaranteed to make 18 knots an hour on the measured mile, and 16½ on a 400 mile sea trip.

They are "twin screws," 485 feet long on deck, 51 feet beam and 36 feet deep; of 5,905 tons gross, with two pair of triple expansion engines working up to 10,000 horse power. They have all exceeded the guaranteed speed. The *Empress of India* made 19¾ knots on the measured mile, the *Empress of Japan* 18·91, and 17·85 on the 400 mile sea trip, and the *Empress of China* 19 knots on the measured mile, and 16·6 in face of a heavy gale, making 89 revolutions a minute and burning only 1·59 lbs. of coal per indicated horse power per hour. This is fast enough for any reasonable man who desires safety.

They are also fitted to carry 14 guns each, under admiralty survey, and can be armed as cruisers or troop ships in 48 hours, so that with their great speed they can either fight or run away from an enemy. They are also lighted throughout by electricity. They have accommodation for 180 first, 32 intermediate and 600 steerage passengers, and space for over 3,000 tons of cargo.

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They cost over one million dollars each, and are superbly fitted throughout, with a luxury never dreamt of by the builders of the early Atlantic steamships. But luxury, after all, is only a secondary consideration, and it may be interesting to point out in some detail the various improvements in these ships,—all tending to safety.

The dangers to which the ordinary screw steamship is exposed may be classed under five heads:—

1st. Fracture of main shaft, as in the case of the *City of Brussels*, *Circassian*, *Umbria*, *Sarnia*, and many other steamships.

2nd. Loss of screw or its fans, as in the cases of the *Peruvian* and *Sardinian*.

3rd. Loss of rudder or damage to it, as in the cases of the *Great Eastern* and *Alaska*.

4th. Breaking down of the machinery, as in the case of the *Aurania*.

5th. Collision between two ships or with rocks, as in the cases of the *Oregon*, *Idaho*, *City of Chicago*, etc.

The first four render a single screw steamship helpless, and she can only reach port by being towed, or by the very tedious process of sailing under her own canvas.

The fifth is usually fatal, as the cross bulkheads are generally too weak to withstand the pressure of a large body of water.

Now, the Canadian Pacific Steamships have all twin screws with two independent sets of engines and boilers, and in this fact is found their immunity from most of the dangers inherent in all single screw steamships; indeed it may be said to exempt them