

immediate cause was the breaking of the starboard main shaft near the screw, when it was making 80 revolutions per minute. This, of course, caused the engine to race. A connect-

her, the *lignum vite* bushing of the after bearing was found to be worn away; the end of the shaft had dropped seven inches and been fractured.

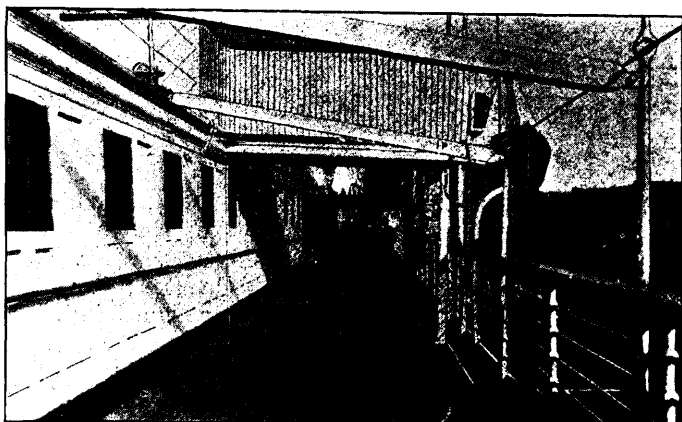
There has always been difficulty in lubricating the after-bearing of the shafts of screw steamships. The late John Penn of Greenwich, found that strips of *lignum vite* inserted in the bearing, when acted upon by salt water and friction, produced a natural lubrication. It was this *lignum vite* that had worn away in such an extraordinary fashion. The writer is not an



ON THE PROMENADE DECK, SS. EMPRESS OF INDIA.

ing rod, 11 inches in diameter broke, and, acting like a huge flail, smashed the two standards (weighing 14 tons each), and the low pressure cylinder (weighing 45 tons), broke off the condenser pipe, and made a hole in the after bulkhead, thus flooding the engine-room. All this would not have stopped her or imperilled her safety, had not flying pieces of metal made three ragged holes in the longitudinal bulk-head, thus causing both engine-rooms to be flooded and driving all the engineers on deck. The forward

engineer, but he would suggest that the facts seem to indicate that the shaft must have been originally slightly out of plumb. This was the case with the *Peruvian*, which, on her



FULL VIEW OF PROMENADE DECK, SS. EMPRESS OF INDIA.

bulk-heads, protecting the boilers, remained intact and kept the ship afloat. She was towed to Queenstown: the condenser and injection pipes were plugged and the water pumped out; then she proceeded to Liverpool with her port engine, unassisted. On docking

trial trip, melted the brasses and damaged the shaft. The fact remains that the *City of Paris* escaped under circumstances in which, according to the official report to the Board of Trade, "No ordinary vessel could have remained afloat after such an accident."