

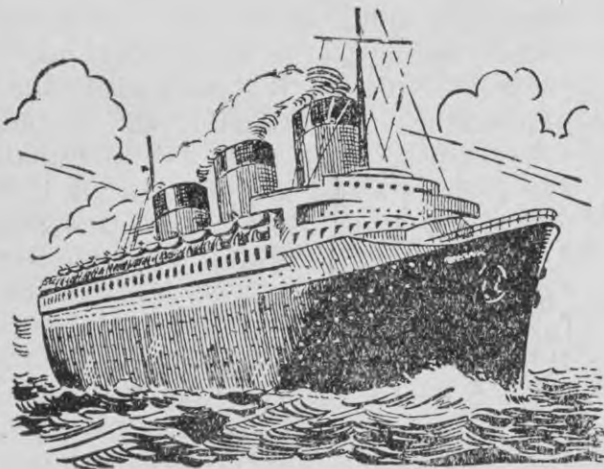
carried a million troops during their long period of war service, each of them accommodating about 15,000 men per voyage. One authoritative estimate has it that the maximum number of troops which could be carried aboard either ship without baggage is 23,000, despite the fact that the *Queen Mary's* normal full passenger complement is only 2,119.

The *Queen Elizabeth*, which was launched in 1938, was moved from her fitting-out berth on the Clydeside to make room for the launch of the new battleship *Duke of York* in 1940. She was taken to sea and run up to her normal sea speed of 28½ to 29 knots, and then crossed the Atlantic to join the *Queen Mary* at New York. Since the spring of 1940 the two ships have steamed a million miles as transports.

There was, after the 1914-18 war, a sharp reaction against the large ship doing fantastic speeds, and there may be a similar reaction this time, in spite of the fact that the world in the past decade or two has become luxury liner-conscious. The close of the second world war, however, is accompanied by a new factor in the threat of serious competition from trans-Atlantic air services. The recent route

test flight from the United States to Britain by a Pan-American World Airways clipper presaged the early inauguration of high-speed land clipper services over the North Atlantic, in which both American and British commercial airways organisations will participate. In the face of this new and powerful competition, which may be expected to grow steadily in the post-war years, the shipping companies will not be able to remain inactive and will be compelled to strive continuously for faster and more attractive services. The new Cunarder, *Queen Victoria*, is probably the first answer to the challenge from the air.

The doubts cast at times on the advisability of constructing mammoth Atlantic passenger liners have been largely dispelled, at least in the case of the British and French, by the facts. It cost five millions to build the *Queen Mary* and eight millions for the *Normandie*, and both justified themselves financially in the peace years, the former handsomely. The fight for supremacy in speed on the Atlantic must, of necessity, force up the size of the ships employed. Disregarding for the moment a possible revolution in marine engines, a ship of ten thousand tons displacement, carrying fuel for the trip, cannot exceed 20 to 21 knots. To gain increased speed it is necessary to increase the size of the vessels, for it is a surprising fact that the larger the ship the lighter it becomes to propel *per ton*. At the same time, it stands to reason that the greater the speed at which a ship is propelled forward the greater will be the strain on the fabric, and consequently the hull must be correspondingly strengthened and thus made heavier. It has been calculated that, in the case of large ships, one-half of the displacement weight must be allowed for the hull, and it follows that in a 27-knot ship with a displacement of 43,000 tons the hull would account for 21,000 tons. With machinery and requisite fuel and



*The French liner Normandie*