

the new "Empresses" on the port and starboard sides transmitters will be fitted, and connected by wires with a telephone box in the navigation room, and by listening at the telephone the officer in charge will hear these warning bells when they are still miles away, and be able to fix the position of his ship, no matter what may be the state of the weather.

Engines and Boilers.

Of equal importance with the hulls, and of far greater costliness, are the boilers and engines. For those with technical knowledge and interests it may be mentioned that the steam pressure in the boilers will be 220 lbs. to the square inch, and that the furnaces will be fitted with Howden's system of forced draught. The engines will be quadruple expansion of the direct-acting reciprocal type, a distinct set driving each of the twin propellers. They will be balanced on the Yarrow, Schlick, and Tweedy system, so as to obviate all vibration, and will be of sufficient horse-power to maintain an average speed of 18 knots an hour at sea, with two knots in reserve to maintain the Canadian Pacific Railway reputation for punctual running. In the opinion of the company's engineers, the turbine engine has not yet reached the stage when it can be relied upon to the same extent as the reciprocating engine for large steamers, and therefore, though in the event of substantial progress being made in its construction they may see their way to recommend its adoption for future "Empresses," they have not thought it wise to do so in the present instance. The Fairfield Company is famous for the masterly workmanship of the many sets of giant engines which have brought fame to notable North Atlantic "grey-hounds," and passengers on board these new "Empresses" who may be privileged to descend into their engine-rooms will enjoy a sight of combined symmetry and power which will not fade easily from their minds.

Passenger Accommodation.

A written description, however detailed, must necessarily fail to convey an adequate idea of the dining saloons, ladies' saloons, smoke-rooms, libraries, and music-rooms of the new boats. Ingenuity has surpassed itself in contriving the most comfortable and cosy shape and proportions, and at the same time securing the most favorable position. The accommodation of each class has, in its degree, been thought out with patient care, with the result that there are many improvements and changes for which travellers in these ships will owe a debt of gratitude to the Canadian Pacific Railway technical officials. The state-rooms and cabins are models of comfort and convenience, with the all-important questions of a right temperature and sufficient ventilation settled by the aid of the latest mechanical appliances.

In all there are eight decks; the uppermost, the boat deck, does not, however, concern passengers. For them it is a distant land where the ship's officers reside, and to which firemen and oilers ascend by ways invisible to gain their "playground." The upper promenade deck is the passengers' uppermost deck. It is completely covered in and protected in all weathers by the boat deck. Around the central deckhouse is the finest strolling ground on board and the best position for deck chairs. Within this great central structure is the music room, and also the entrance to the grand staircase and a number of fine state rooms, resplendent with beautiful woods, silks, and tapestry. The first-class passenger accommodation generally presents interesting and unconventional features. It is distributed over the choicest parts of the two promenade decks and the shelter deck. The disposition of the various public rooms is something of a departure, and represents the acme of comfort and convenience. In the placing and planning of these rooms the keynote is accessibility and cosiness, while everywhere there is ample light and perfect ventilation. In the matter of decoration, the treatment is bold and original, culminating in the music room, which, with its dome, suggests a Chapterhouse in Westminster Abbey, fitted with snug recesses and a cheery fireplace. The state rooms are of all kinds, and include some en suite with private bath rooms.

The lower promenade deck, unlike those above it, which do not extend beyond the central deck-house, runs right aft to the stern. Here amidships is the café, and adjoining it the first-class smoking-room with verandahs, so that passengers may smoke sheltered in the open if they so desire, and more special state rooms.

Next comes the shelter deck, extending from stem to stern. Right amidships is the first-class dining saloon, a splendid apartment with seating accommodation for about 250 persons. Among its novel and attractive features this saloon is remarkable for an arrangement of small horse-shoe-shaped tables to seat five, screened off to a sufficient height, and suggestive of delightful little lunch and dinner parties. Adjoining it forward, is the first-class children's dining saloon with its own separate pantry and service room.

Second-class Accommodation.

The second-class accommodation is also on the shelter deck abaft the first-class. The dining saloon is a spacious apartment extending the full width of the ship, and handsomely fitted in rich mahogany. Adjoining it is the second-class social hall, and adjoining this again is the second-class smoking-room. The second-class children's nursery is on the deck below. To form a true conception of these assembly rooms it is necessary to dismiss all previous notions of second-class accommodation. Lofty, light, roomy, they are appointed, like the first-class rooms with ungrudging elegance.

Third-class Accommodation.

It has been said that the Canadian Pacific Railway is, from policy as well as inclination, somewhat over-indulgent to its passengers. This is well evidenced in the third-class of these new "Empresses." The best portions of the upper and main decks are allotted for their accommodation, which includes a spacious dining-room the full width of the ship, decorated in white and with the famous Canadian maple-wood; a smoking-room, perfectly lighted and ventilated, opening out on to the covered deck; and finally, a ladies' room comfortably upholstered and fitted with mahogany. It has become a commonplace to assert that the second-class on board such and such a steamer is superior to the first-class of earlier days. It is quite a pardonable exaggeration, if it be at all beyond the truth, to say that third-class passengers will enjoy on board these new Canadian Pacific Railway ships comforts and indulgences which the first-class of not so very many years ago would have sought in vain.

The Table and Attendance.

As regards catering and attendance, the Canadian Pacific Railway officials have gained their experience in what is, perhaps, the best school, viz., the East. Sea appetite and boisterous democratic ideas of equality are undoubtedly fine things, yet we know that the one is not always present, and the other seems not unfrequently out of place at sea. On board the "Empresses" on the Pacific the menus are drawn up to tempt the most fastidious, and the service is prompt and intelligent. It may not be advisable to bring the patient Chinamen on to the North Atlantic, but it may be relied upon that on board the new "Empresses" these two all-important departments will be kept at the highest state of efficiency.

—The drill frequently penetrates hundreds of feet of solid salt in drilling wells for petroleum. The salt is often as clear as glass, as hard as rock and is frequently interstratified with shale, as is frequently the case with coal. In the region where there is a stratum of salt above the petroleum there is often salt water in the petroleum stratum. Especially is this the case where the material between the surface and the oil stratum is mainly limestone. The latter material, being very unyielding, its cleavage allows an easy access of water, often to a great depth; while clayey shales, being more plastic, often exclude all water from penetrating more than a hundred feet or so from the surface.