

greater than these have to draw somewhat on their imagination. The heavy swell consequent upon a storm in the Southern Ocean (and there is a swell at almost all times) will rock the largest ships in a manner quite surprising, though the sea may seem to be very calm, the great rolling "swells" being of enormous breadth. Hence a trip across the Australian Bight, which gets full benefit of these billows, is rarely a pleasant one and generally most disagreeable.

Three days and a half steaming, however, landed us in the spacious harbor of Albany, Western Australia—the last Australian port of call for homeward bound ships. It is a small and sleepy place, and, like the rest of the Colony of Western Australia, making slow progress; though it is said that latterly fresh life has been awakened and "things are going to move." Amongst other hindrances to the colony's progress is the existence in large quantities of a poisonous weed which effectually kills off the cattle and sheep. Now this difficulty is being overcome, it is said, and so vast is the territory and so varied its possible resources, that many prophecy with confidence a brighter future for Western Australia than the Eastern Colonies. Its chief centre and only city is Perth, some considerable distance north of Albany, with which it has rail connection on the west coast.

Again weighing anchor, we left the well-protected harbor of Albany—surrounded on all sides by rocky hills and cliffs and which seamen praise for its good qualities—for the long voyage across the Indian Ocean, wind, weather, and tide in our favor. For many hours the bold and rocky coastline was in view, the angry rocks in places attaining a height of 600 feet. Numerous and most dangerous small islands—some of them mere crags appearing above the water—line the south-west coast. Such were our last glimpses of Australia and the last bit of land we were to see for many days.

To persons accustomed to a busy life on shore, it is a mystery how one is able to fill in the time pent up in a ship's narrow limits during a long voyage. When the passenger has acquired his sea-legs and, vastly more important, his sea-stomach, which in average weather does not, in the worst cases, usually take more than four or five days, the matter solves itself, and the question, "Where has the time gone?" is heard most frequently amongst passengers.

True, there is a tendency to laziness—especially in warm latitudes—and inertia is felt to such an extent that it becomes necessary at times to force oneself to take sufficient exercise. The time spent on a long sea voyage, however, need not be wasted in idleness, but can easily be turned to profit and pleasure, which will depend solely on the tastes and inclinations of the voyager.

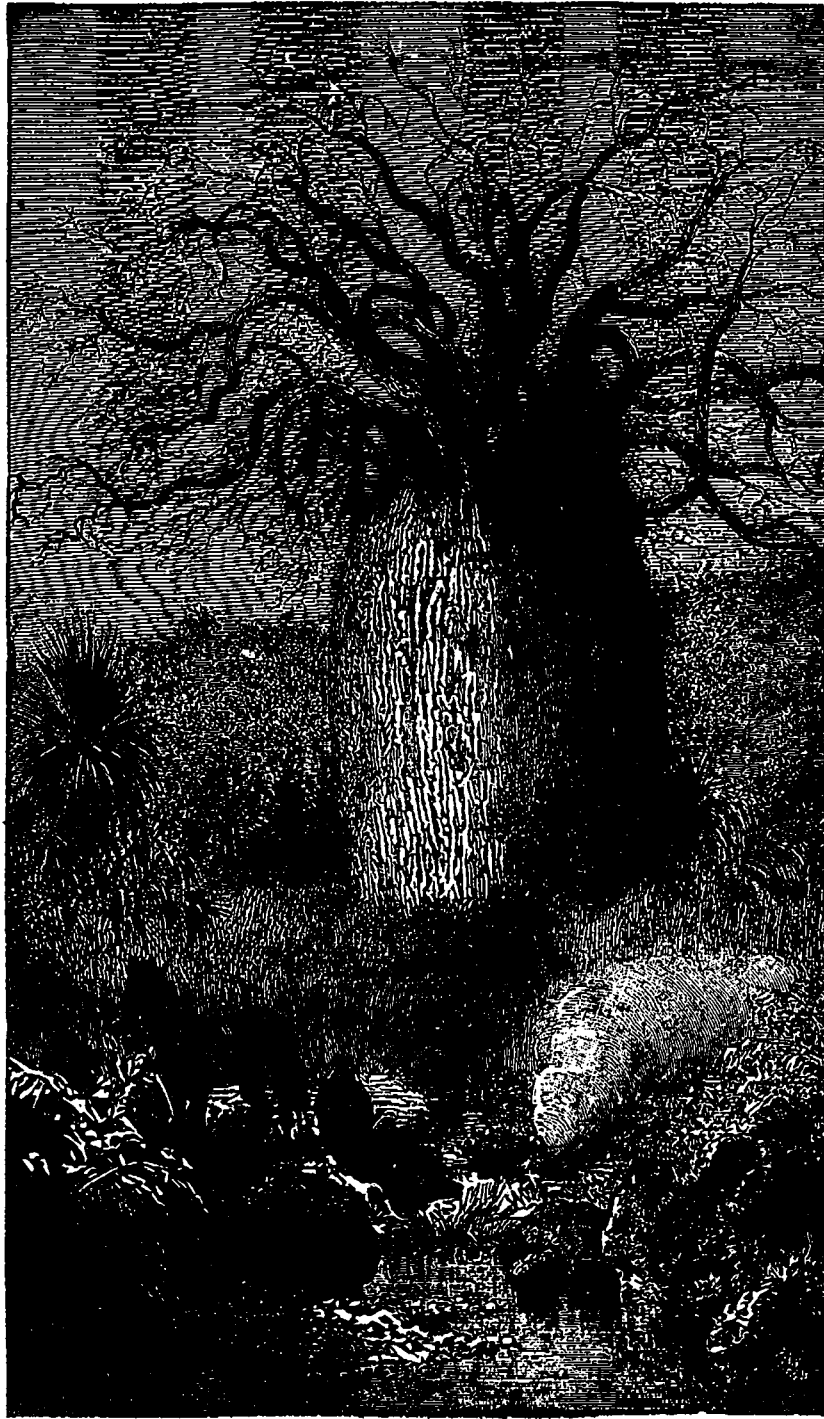
The first thing that will receive his attention will be the ship in which he is sailing, and if he has never been to sea before, it will offer any amount of interesting investigation. The mammoth modern steamship is a most marvellous institution. It is more than a floating and perfectly-equipped hotel—it is really a floating village. There is a governor and a large retinue of sub-officials and public servants. The inhabitants, which sometimes are as numerous as 1,500 souls, live in "cabins." There are marked degrees in society, and the village has its aristocratic quarter. There are the usual variety of shops, the more conspicuous being a bakery,

Besides the main engines there are many others—pumping engines of various sorts, some in constant use, others awaiting emergency; steering engines, by which the great rudder is easily controlled by a single man; hoisting engines (steam winches) for loading and unloading freight, hoisting sails, etc.; electric light engines and dynamos, the latest ships being handsomely illuminated by electric light; freezing machinery and air compressors for making ice and supplying the "freezing chambers" and refrigerators with cold blasts, and in which fresh meat and vegetables are carried, the "chief steward" of to-day being able to sumptuously feed passengers to the end of the voyage on fresh delicacies and fruits; then there are great condensers and other kinds of machinery—the whole of which is under the management of a staff of "engineers." The great steamship has, too, all the equipment of a sailing ship, and in fair winds the sails are set to aid her progress, while, in case of emergency, they could be used alone.

If the passenger be so minded, he can spend many pleasant hours in learning the rudiments of the science of "seamanship," which has to do with the working of the ship only; and it will be found that the apparently inextricable mass of ropes and rigging, the bewildering appliances, and the use and operating of the apparatus for steering, handling the anchor, etc., etc., are more easily understood than at first supposed. As for the science of navigation now so highly perfected—the science which enables men to sail the seas for weeks together and determine their course and guide the ship to its desired haven—without deep study one cannot hope to more than comprehend its a, b, c. Every morning at eight o'clock, and also at noon, the officers may be observed looking at the sun through curious instruments, "sextants," and if one inquires what they are doing, the answer will be, "Taking the sun," or, in other words, they are ascertaining their position—the latitude and longitude in which the ship is sailing. A chronometer, which is a superior kind of watch or clock, kept carefully protected from weather and suspended on gimbal joints, for preserving "prime meridian" time,

is used in connection with the sextant for determining longitude. Position may also be taken from the moon or stars. In cloudy or rainy weather, "dead reckoning" has to be resorted to.

Of course everybody knows *something* about the mariner's compass, but it may astonish some of you to learn that it does not point to the true north, the difference, which is considerable, being termed "variation of the compass." It gets very badly astray at times, too, from "local attraction"—the iron of the ship, etc.—such deviation of the compass being determined by instruments for the purpose.



BOTTLE-TREE.

butcher's shop, apothecary's shop, barber's shop, general supply store, oil store, bar room, carpenter's shop, etc. Life goes on about as it does on shore, though there seems to be a large percentage of the population enjoying leisure. But the most interesting feature of this "floating village" is the means by which it is propelled and managed, and by which its course is directed. The great screw or propeller wheel is driven by engines of thousands of horsepower. The three large engines which drive the great mass of machinery in operation in the works of THE MASSEY MFG Co. have but infantile power compared to these mighty marine giants.