Tong-shu, I do not know if identical with the wood-oil trees of Arakan and Pegu (*Dipterocarpus laevis*).

["What goes under the name of 'wood-oil' to-day in China is the poisonous oil obtained from the nuts of *Elæococca verrucosa*. It is much used for painting and caulking ships." (*Bretschneider, Hist. of Bot. Disc.* I. p. 4.)—H. C.]

Note 5.—The junks that visit Singapore still use these sweeps. (*J. Ind. Arch.* II. 607.) Ibn Batuta puts a much larger number of men to each. It will be seen from his account below that great ropes were attached to the oars to pull by, the bulk of timber being too large to grasp; as in the old French galleys wooden *manettes*, or grips, were attached to the oar for the same purpose.

Note 6.—The Chinese sea-going vessels of those days were apparently larger than was at all common in European navigation. Marco here speaks of 200 (or in Ramusio up to 300) mariners, a large crew indeed for a merchant vessel, but not so great as is implied in Odoric's statement, that the ship in which he went from India to China had 700 souls on board. The numbers carried by Chinese junks are occasionally still enormous. "In February, 1822, Captain Pearl, of the English ship *Indiana*, coming through Gaspar Straits, fell in with the cargo and crew of a wrecked junk, and saved 198 persons out of 1600, with whom she had left Amoy, whom he landed at Pontianak. This humane act cost him 11,000*l.*" (Quoted by *Williams* from *Chin. Rep.* VI. 149.)

The following are some other mediæval accounts of the China shipping, all unanimous as to the main facts.

Friar Jordanus:—"The vessels which they navigate to Cathay be very big, and have upon the ship's hull more than one hundred cabins, and with a fair wind they carry ten sails, and they are very bulky, being made of three thicknesses of plank, so that the first thickness is as in our great ships, the second crosswise, the third again longwise. In sooth, 'tis a very strong affair!" (55.)

Nicolo Conti:—"They build some ships much larger than ours, capable of containing 2000 butts (*vegetes*), with five masts and five sails. The lower part is constructed with triple planking, in order to withstand the force of the tempests to which they are exposed. And the ships are divided into compartments, so formed that if one part be shattered the rest remains in good order, and enables the vessel to complete its voyage."

Ibn Batuta:—"Chinese ships only are used in navigating the sea of China. . . . There are three classes of these: (1) the Large, which are called *Jonúk* (sing. *Junk*); (2) the Middling, which are called *Zao*; and (3) the Small, called *Kakam*. Each of the greater ships has from twelve sails down to three. These are made of bamboo laths woven into a kind of mat; they are never lowered, and they are braced this way and that as the wind may blow. When these vessels anchor the sails are allowed to fly loose. Each ship has a crew of 1000 men, viz. 600 mariners and 400 soldiers, among whom are archers, target-men, and cross-bow men to shoot naphtha. Each large vessel is attended by three others, which are called respectively 'The Half,' 'The Third,' and 'The Quarter.' These vessels are built only at Zayton, in China, and at Sínkalán or Sín-ul-Sín (*i.e.* Canton). This is the way they are built. They construct two walls of timber, which they connect by very thick slabs of wood, clenching all fast this way and that with huge spikes, each of which is three cubits in length. When the two walls have been united by these slabs they apply the bottom planking, and then launch the hull before completing the construction. The timbers projecting from the sides towards the water serve the crew for going down to wash and for other needs. And to these projecting timbers are attached the oars, which are like masts in size, and need from 10 to 15 men * to ply each of them. There are about 20 of these great oars, and the rowers at each oar stand in two ranks facing one another. The oars are provided with two strong cords or cables; each rank pulls

* Or even 30 (p. 248).