

gunnel-space to each bench. And as one of the objects of the grouping of the oars was to allow room between the benches for the action of cross-bowmen, &c., it is plain that the rowlock space for the three oars must have been very much compressed.*

The rowers were divided into three classes, with graduated pay. The highest class, who pulled the poop or stroke oars, were called *Portolati*; those at the bow, called *Prodieri*, formed the second class.†

Some elucidation of the arrangements that we have tried to describe will be found in our cuts. That at p. 35 is from a drawing, by the aid of a very imperfect photograph, of part of one of the frescoes of Spinello Aretini in the Municipal Palace at Siena, representing a victory of the Venetians over the Emperor Frederick Barbarossa's fleet, commanded by his son Otho, in 1176; but no doubt the galleys, &c., are of the artist's own age, the

* Signor Casoni (p. 324) expresses his belief that no galley of the 14th century had more than 100 oars. I differ from him with hesitation, and still more as I find M. Jal agrees in this view. I will state the grounds on which I came to a different conclusion. (1) Marino Sanudo assigns 180 rowers for a galley equipped *ai Terzaruoli* (p. 75). This seemed to imply something near 180 oars, for I do not find any allusion to reliefs being provided. In the French galleys of the 18th century there were no reliefs except in this way, that in long runs without urgency only half the oars were pulled. (See *Mém. d'un Protestant condamné aux Galères*, etc., Réimprimés, Paris, 1865, p. 447.) If four men to a bench were to be employed, then Sanudo seems to calculate for his smaller galleys 220 men actually rowing (see pp. 75-78). This seems to assume 55 benches, *i.e.*, 28 on one side and 27 on the other, which with 3-banked oars would give 165 rowers. (2) Casoni himself refers to Pietro Martire d'Anghieria's account of a Great Galley of Venice in which he was sent ambassador to Egypt from the Spanish Court in 1503. The crew amounted to 200, of whom 150 were for working the sails and oars, *that being the number of oars in each galley*, one man to each oar and three to each bench. Casoni assumes that this vessel must have been much larger than the galleys of the 14th century; but, however that may have been, Sanudo to his galley assigns the larger crew of 250, of whom almost exactly the same proportion (180) were rowers. And in the *galeazza* described by Pietro Martire the oars were used only as an occasional auxiliary. (See his *Legationis Babylonica Libri Tres*, appended to his 3 Decads concerning the New World; *Basil.* 1533, f. 77 *ver.*) (3) The galleys of the 18th century, with their great oars 50 feet long pulled by six or seven men each, had 25 benches to the side, and only 4' 6" (French) gunnel-space to each oar. (See *Mém. d'un Protest.*, p. 434.) I imagine that a smaller space would suffice for the 3 light oars of the mediæval system, so that this need scarcely be a difficulty in the face of the preceding evidence. Note also the *three hundred rowers* in Joinville's description quoted at p. 40. The great galleys of the Malay Sultan of Achin in 1621 had, according to Beaulieu, from 700 to 800 rowers, but I do not know on what system.

† *Marinus Sanutius*, p. 78. These titles occur also in the *Documenti d'Amore* of Fr. Barberino referred to at p. 117 of this volume:—

“ Convienti qui manieri
Portolatti e prodieri
E presti galeotti
Aver, e forti e dotti.