off the Azores in 1591, with the Revenge, commanded by Sir Richard Greenvil. The following armament of the Philip is extracted from a most spirit-stirring account of this tremendous action, which was written by Sir Walter Raleigh, and has been preserved by Hackluyt. “ The Philip carried three tire of ordnance on a side, and eleven pieces in euerie tire. She shot eight forth right out of her chase, besides those of her stern portes.”

We do not appear to have followed the example set by the Spaniards ; for, during the long reign of Elizabeth, the ships of the royal navy were not much, if at all, increased in their dimensions, which was probably owing to the triumph­ant successes of her fleets, though, as we have seen, they were composed of ships generally much smaller in size than those opposed to them. We find from the list of the royal navy at the time of her death, in 1603, given by Sir William Monson in his tracts, that of forty-two ships composing the navy, there were then only two ships of 1000 tons, three of 900, three of 800, two of 700, four of 600, four of 500, and there were eight under 100 tons burthen. Two of these ships, the Triumph and the White Bear, are rated in this list each at 100 tons less burthen than in the list of the fleet in the year 1588, which we have already noticed.

Shortly after the accession of James to the throne, seve­ral commissions were appointed to inquire into the state of the navy. From that of the year 1618, a very voluminous report emanated, of which the following is an extract, that affords an example of the state of knowledge on naval archi­tecture at that time. “ The next consideration is the man­ner of building, which in shipps of warr is of greatest im­portance, because therein consists both their sayling and force. The shipps that can saile best can take or leave (as they say), and use all advantages the winds and seas does afford ; and their mould, in the judgment of men of best skill, both dead and alive, should have the length treble to the breadth, and breadth in like proportion to the depth, but not to draw above sixteen foote water, because deeper shipps are seldom good saylers,and ever unsafe for our rivers, and for the shallow harbours, and all coasts of ours, or other scas. Besides, they must bee somewhat snugg built, without double gallarys, and too lofty upper workes, which overcharge many shipps, and make them coome faire, but not worke well at sea.

“ And for the strengthening the shipps, wee subscribe to the manner of building approved by the late worthy prince, the lord admll., and the officers of the navy (as wee are in­formed), on those points.

“ 1. In makeing 3 orlopes, whereof the lowest being placed 2 foote under water, both strengtheneth the shipp, and though her sides bee shott through, keepeth it from bildgeing by shott, and giveth easier meanes to finde and stopp the leakes.

“ 2. In carrying their orlopes whole floored throughout from end to end, without fall or cutting off ye wast, which only to make faire cabbins, hath decayed many shipps.

“ 3. In laying the second orlope at such convenient height that the portes may beare out the whole fire of or­dinance in all seas and weathers.

“ 4. In placeing the cooke roomes in the forecastle, as otherr war shipps doe, because being in the midshipps, and in the hold, the smoake and heate soe search every comer and scame, that they make the okam spew out, and the shipps leaky, and soone decay ; besides, the best roome for stowage of victualling is thereby soe taken up, that trans­porters must be hyred for every voyage of any time ; and, which is worst, when all the weight must bee cast before and abaft, and the shipps are left empty and light in the midst, it makes them apt to sway in the back, as the Guardland and divers others have done.”

This commission was followed by several others during this and the succeeding reign, and from their reports arose

many regulations tending much to the improvement of the navy, although the expenses incurred were, ostensibly at least, in part the means of causing the subsequent revolution.

In the early part of the reign of James I. the mercantile navy of England was reduced to a very low state, most of the commerce being carried on in foreign bottoms. The incitement offered by the advantageous trade which the Dutch had long engaged in to India at length aroused the nation, and the formation of the East India Company, which was the act of James, was followed by the building of the largest ship that had yet been constructed for the purposes of commerce, at least in England. The king dined on board of her, and gave her the name of the Trade's Increase. She is reported to have been of the burthen of 1200 tons. The im­petus once given, before the end of the reign of James an important mercantile navy was owned by British merchants.

Another interesting fact connected with this reign is the founding of the Shipwrights’ Company, in the year 1605, and which was incorporated by a charter granted to the “ Master, Warden, and Commonality, of the Art or Mys­tery of Shipwrights,” in May 1612. Mr Phineas Pett, of whom we shall presently speak, was the first master. The draughts for the ships of the royal navy were subsequently ordered to be submitted to this company for approval pre­viously to being built from. They also had jurisdiction over all builders, whether of the royal navy or of merchant shipping.

In 1610 the Royal Prince was launched; she was the largest ship which at that time had been built in England, and was also a most decided improvement in naval archi­tecture. The great projection of the prow, a remnant of the old galley, was for the first time discontinued, and the stern and quarters assimilated more to those of a modern ship than to any which had preceded her. She is thus de­scribed in Stow’s Chronicles: “ A most goodly ship for warre, the keel whereof was 114 feet in length, and the cross beam was 44 feet in length ; she will carry 64 pieces of ordnance, and is of the burthen of 1400 tons. The great workmaster in building this ship was Master Phineas Pett, Gentleman, some time master of arts at Emanuel College, Cambridge.”

The same gentleman, Mr Phineas Pett, continued the principal engineer of the navy during the reign of Charles. The family of the Petts were the great instruments in the improvement of the navy, and, if the term may be allowed, of modernizing it, by divesting the ships of much of the cumbrous top-hamper entailed on them from the castellat­ed defences which had been necessary in, and which yet remained from, the hand-to-hand encounters of the middle ages ; and it is probable that, but for the taste for gorgeous decoration which prevailed during the seventeenth century, this ingenious family would have been able to effect much more ; as it was, they decidedly rendered England pre­eminently the school for naval architecture during the time they constructed its fleets. This family can be traced as principal engineers for the navy from about the middle of the fifteenth century to the end of the reign of William III.

Evelyn, in his Diary, relating a conversation, says, “ Sir Anthony Deane mentioned what exceeding advantage we of this nation had by being the first who built frigates, the first of which ever built was that vessell which was after­wards called the Constant Warwick (built in 1646), and was the work of Pet of Chatham, for a trial of making a vessell that would sail swiftly. It was built with low decks, the guns lying near the water, and was so light and swift of sailing, that in a short time she had, ere the Dutch war was ended, taken as much money from privateers as would have laden her.” The dimensions of this vessel arc given in Pepys’s Miscellanies as follows: Length of the keel eighty-five feet, breadth twenty-six feet five inches, depth thirteen feet two inches, and 315 tons burthen ; her “ highest number of guns” thirty-two, and of crew 140.

Peter Pett, who built the Constant Warwick, was the son