pended upon the success of her naval exertions, and then contemplate the enormous numerical force of the fleets of the petty Grecian states, we may form a very correct judg­ment of the necessarily comparative insignificance of the vessels which composed these more early navies.

The Roman ships were divided into three classes : the *naves longa,* or ships of war ; the *naves onerariæ,* or ships of burthen ; and the *naves liburna,* which were ships built expressly for great velocity, and may be supposed to have been used as despatch-boats, and for making passages with important personages. There is repeated evidence to prove that these vessels were invariably built of pine, cedar, or other light woods, excepting about the bows, which were of oak, strongly clamped and strengthened with iron or brass, in order to withstand the shock of opposing vessels ; the tactics being comprised in the attempt to sink or damage the enemy’s vessel, by violently propelling this armed bow against the weaker broadside of the enemy, or else endea­vouring to break and cripple the oars. Oak was first ap­plied to ship-building by the Veneti. This we have on the testimony of Cæsar in his treatise *De Bello Gallico,* lib. iii. cap. 13. Copper or brass was introduced for fastenings, in consequence of the quick corrosion of the iron, about the time of Nero. This is stated on the authority of Vegetius, and also of Athenæus ; and Pliny mentions that flax was used for the purpose of caulking the scams of thc plank.

The following quotation is from Locke’s History of Navi­gation : “ Sheathing of ships is a thing in appearance so absolutely new, that scarce any will doubt to assert it alto­gether a modern invention ; yet how vain this notion is, will soon appear. Leo Baptisti Alberti, in his book of Archi­tecture (lib. **V.** cap. 12), has these words : But Trajan’s ship weighed out of the lake of Riccia at this time, while I was compiling this work, where it had lain sunk and neglected for above thirteen hundred years ; 1 observed that the pine and cypress of it had lasted most remarkably. On the out­side it was built with double planks, daubed over with Greek pitch, caulked with linen rags ; and over all a sheet of lead fastened on with little copper nails. Raphael Vo- laterranus, in his Geography, says this ship was weighed by the order of Cardinal Prospero Colonna. Here we have caulking and sheathing together, above sixteen hundred years ago ; for I suppose no man can doubt that the sheet of lead nailed over the outside with copper nails was sheath­ing, and that in great perfection, the copper nails being used rather than iron, which, when once rusted in the water, with the working of the ship, soon lose their hold and drop out.”

Slight as this sketch may appear of the navies of antiqui­ty, it embraces an outline of almost all that has descended to our times. No portion of ancient history is so imperfect as that which relates to the shipping, and in none necessa­rily has the historian derived less aid from remains. Even the monumental records here fail him, as the prow alone is sculptured on them.

*Progress of Naval Architecture from the Downfall of Rome to the present Time.*

During the many centuries of utter stagnation in all im­provement which succeeded the downfall of ancient civili­zation, it would appear vain to seek for records of the pro­gress in naval architecture. “ These were times,” says Rymer, in the dedication of the third volume of the Foedera,

“ of great struggle and disorder, all Europe over, and the darkest period of times.” Although it may be useless to search for records of the improvement of the means of na­vigation during these ages, when thought appears to have been banished from the earth, and action to have been the only object of man’s life, we may undoubtedly expect that, in the countries bordering on the seas, the spirit of naval

enterprise would be peculiarly fostered, as congenial to man’s habits, or essential to his preservation, during a period of universal aggression, confusion, and migration. The north­ern regions of the earth, regions which the civilization of the south had deemed uncongenial to man and unfit for his habitation, appear to have teemed, in all their wild and far- spreading districts, with a hardy and an adventurous popu­lation, horde after horde of whom poured down from the north-east in irresistible might, and spread desolation and misery throughout Southern and Western Europe; while from the north-west the same wide-spreading desolation swept away all trace of the incipient civilization of Britain and of Gaul. Every sea was ploughed by the fragile barks of the Scandinavian adventurers, and every shore was de­vastated by their incursions. Denmark, Norway, and Swe­den sent their hardy sons to the coasts of the German Ocean, the Channel, the Bay of Biscay, and even to the Mediterranean on the west ; while the barbarians of the Scla­vonian nations poured down through the Danube and the Borysthenes on the east of Europe, the population of which, rendered feeble by the divisions and dissensions attendant upon the breaking up of the gigantic power of Rome, and enervated by the Sybarite civilization of the latter days of that empire, perished beneath the arms or bent to the yoke of the hardy progeny of the north. The Saracens wrested from the descendants of the Cæsars the remnant which the Goth and Hun had spared ; and Europe became repeopled throughout its limits with a young, a vigorous, and an enter­prising population, while the maritime provinces had gene­rally been the spoil of tribes inured to the dangers and de­lighting in the excitement of maritime adventure.

We cannot but be astonished at the indomitable spirit of enterprise which characterized these rude times. But that, perhaps, which is the most extraordinary feature of the daring that distinguished this period, is to be traced by the results of its naval expeditions, which could not be be­lieved, had they not been established on the most unques­tionable evidence ; and the whole history of the middle ages, with their revolutions, may be cited in corroboration of them. Still they had such important influence on the state of Western Europe, that, judging of causes by their effects, there must ever remain a doubt of our being in possession of correct information as to the means by which the results we speak of were accomplished. It is not difficult to sup­pose adventurous men trusting themselves to the mercies of the winds and the waves, and leaving the sterile north to plunder and colonize more favoured climates, of the exist­ence of which their traditions might inform them. But this is not all : there is ample evidence to prove a recurrence of such enterprising voyages, their successful achievement, and the safe return of the adventurers, not only to Nor­way and the main land, but to Iceland ; a remote spot, which might be left, but certainly could not be again repeatedly attained without more knowledge than we are willing to concede to so remote a period.

The navigator of the present day, accustomed to rely on the almost infallible aid of the compass, the chronometer, and the sextant, would pause ere he dared to commit him­self to the boundless expanse of ocean, with no more sure pilotage over its trackless waters than he might chance to find from the appearance of the sun or stars and the flight of birds. And yet we have no record that these Scandina­vian sea-kings knew of more certain guides than the sun by day, the stars by night, and such further aid as per­chance might be wrested to their purpose, from the varied phenomena of nature ; phenomena which may now be un­observed, because not needed.

We read in Purchas’s Pilgrims the following account of the voyage of Floke, a Norwegian pirate, made in the early part of the tenth century, from Shetland to Iceland ; which he gives on the authority of Amgrim Jouas, an Icelandic