Cape to India would lead him between Madagascar and the main land of Africa ; and so he would sail across the equator, and enter the Bay of Bengal with a flowing sheet. At other seasons, so far from having a flowing sheet on reaching India, he may have to beat up the bay, “ hank for hank,” unless he has knowledge enough to know at which side to enter it, and skill enough,—for it requires a good deal,—to know how to profit by the land and sea breezes of the coasts respectively of Coromandel and of Pegu.

In short, not to swell this example too far, the truly scien­tific navigator, possessed of the requisite nautical instru­ments, (the most important of which we propose to speak of by and by), by which means he may at all times be certain of his place, may almost command a fair wind at every stage of his voyage, and thus secure his passage within a certain number of days; though, in his way, he will have had to vary his course a hundred times from that which, at first sight, might have been thought the best, merely because, on the map, it seemed the shortest. The old proverb, indeed, which warns us that the longest way about is often the shortest way home, has perhaps its amplest illustration in the practice of modem seamanship ; but, let it be always borne in mind, that this is true only when all the varying cir­cumstances of time and place are duly taken into account, and so appropriated as to give to the ship those advantages of fair wind and moderate weather, without which no voyage can be securely, or speedily made. This branch of seaman­ship, therefore, more than any other, requires for its suc­cessful exercise a singular combination of the widest gene­ralizations in theory, with the most minute and specific dis­integrations of scientific research in practice. In the In­dian seas especially, the whole history of the winds, examin­ed without some theoretical clue, is a mass of confusion ; and yet the profoundest meteorological science would inevi­tably prove not only useless, but absolutely dangerous to the navigator who should trust to it alone, without the aid of local information, and of the improvements of modem art.

These remarkable improvements are due to the spread of knowledge over the sea, as well as over the land; and it is proposed here, to examine a few of the causes which have led to such valuable results in the practice of seamanship, as they will all be found to fall readily under that great head For detailed practical information, of a kind which might be useful to a sailor in the actual working of a ship, we must of course refer to the precise heads which treat professedly of these things, such as Anchors, Astronomy, Cables, Capstan, Navigation, Rope, Ship-building, Steam-Vessels, and so forth, the purpose of this Appendix to the article Seamanship being merely to point out, in a very general, but by no means superficial manner, the most im­portant improvements which have been introduced afloat since the preceding article was written.

It will not be expected that much should be said here of the mighty revolution in nautical affairs brought about by the introduction of steam ; for that subject demands, and has received the fullest attention in its proper place. We shall merely observe, that steam does net essentially inter­fere with seamanship proper, almost all the manipulations of which remain as before; whilst steam navigation, in spite of its boasted contempt of wind and tide, is still obliged to borrow so much from seamanship to complete its success, that without its aid it would often be useless, and even dangerous in the highest degree. We shall take occasion as we go along, to point out some of the most remarkable occasions in which the old system of seamanship proper is essential to the method by steam ; merely remarking at present, that nearly all that branch of our subject which re­lates to navigation, that is, to the method by which a ship’s place is determined at sea, the proper course shaped, and the different ports of the world recognised and made use of, remains the same. Latitudes and longitudes, and the va­

riation of the compass, are evidently just as important to **a** steam vessel as to a sailing one ; and though winds and cur­rents are not quite so essential, every one who has made a steam voyage of any length, is aware how materially its celerity depends upon a knowledge of and due attention to these particulars. It is one of the chief points of a seaman’s duty to know where to find a fair wind, and where to fall in with a favourable current; but the obligation, if not equally binding on a steam navigator, is almost so, when his voyage is a long one. The most remarkable occasions on which steam has the advantage over sails are, in a calm, and when the wind is directly ahead. In a calm, a sailing ship is utterly helpless, and must stand stock still ; with a wind in her teeth, if it blow hard, she can do nothing, or does worse than nothing, drifts away from her point. There is another important occasion on which a steam vessel, if pro­perly handled, has a wonderful advantage over an ordinary ship, and we advert to it, first, because we do not remem­ber to have seen it mentioned before; and, secondly, be­cause it involves some considerations of true seamanship, which it is the business of this Appendix to dwell on.

We allude to the formidable danger of a lee shore, in a gale of wind, when we shall suppose the weather to be such that a ship and a steam vessel are both obliged to anchor, and that from the anchor not holding, or the insufficient strength of the cables, there is risk of their being forced on the shore. In this predicament, we have heard of a steam vessel, by the mere agency of her steam, not exerted to any great extent, either keeping her cable slack, or very material­ly relieving it from the strain produced by the wind. But even supposing her stock of fuel expended, or that her ma­chinery had got out of order, she may still be looked upon as a ship with her masts cut away, which, we may explain to unprofessional readers, is the most favourable condition for a ship to be in, under such dangerous circumstances. It may be asked, and with great reason, why, if this be so, should not the ship when in danger of driving on the rocks, also get rid of her masts, by cutting them away, and so place herself in as favourable a position as the steamer, on the lee shore ? To this we answer, that the operation of cutting away the masts is always a very serious one, and, like the ampu­tation of a limb to a labouring man, is not to be resorted to till the last extremity. Besides, it is often a matter of doubt, which is the last moment of safety, and the first of extreme danger ; and as the commander of the ship may not have had experience of such critical cases, he may, and too often does, hesitate to dismember his vessel, till the anchor comes so rapidly home, that cutting away the masts will not stop her headlong way amongst the breakers ; and then it is too late. The steam vessel, however, is *al­ready,* and at all times, in the best condition for anchoring on a lee shore. We ought here to mention to our un- nautical readers, in what consists the advantage of cutting away the masts, when a ship is in this situation, and is in danger, from the violence of the wind, of being drifted on the rocks. It is well known that the mere hull of a ship, placed with the bow to the wind, offers but a small resist­ance to the wind, compared to what is presented by the masts, yards, ropes, and sails ; for though the sails be furled, they are generally, on such occasions, but clumsily handed, and hold much wind. The form of a ship’s bow is equally adapted, or nearly so, to passing through the air as through the water, and the area offered by it to the wind is very small, compared to that which the “ top hamper,” as it is called, presents. Let any one in a gale of wind on board ship take hold of the smallest rope, the signal haulyards, for example, and he will find it requires a considerable exer­tion of his strength to prevent its being blown out of his grasp, and in proportion as the rope is large, so is the vio­lence of the wind upon it. And when the immense num­ber, and great length of the whole ropes of a ship are taken