celebrated for centuries. The Americas do not produce fine oak timber ; but considerable quantities are imported from Canada, in consequence of the lowness of the price at which it can be sold in England. There are two sorts of oak growing in America, the white and the red, but both are very inferior to European timber. There is, however, an American oak, called the live oak, produced principally in the Floridas, which has the character of being among the most durable timbers in existence. It is said to be compa­ratively incorruptible, but it is not a timber much known in Britain. The great resource of our dock-yards for timber of large scantling is an African timber, called Tortosa, more commonly only “ African.” It is a heavy, hard, close- grained, and even textured wood, well adapted for beams, and for internal works, but does not resist alternations of mois­ture, and deteriorates rapidly whenever it is in contact with iron. The wood round the bolt-heads is carbonized in an incredibly short space of time—incredible when the strength, texture, and hardness of the wood are considered ; but it appears to be a timber wholly without any protective olea­ginous or terebinthinous juices. There are several species of timber that are much used in Britain in the construc­tion of merchant-ships, but which are unknown in the royal dock-yards. We shall in a subsequent portion of this article notice these, for the purpose of showing their relative values. We consider that the most satisfactory course we can pur­sue to effect this object, without occupying more space than can be appropriated to this article, will be to give the tabu­lar arrangement of woods, as enforced by Lloyd’s surveyors, under the direction of the committee of that establishment.

We have hitherto confined our remarks to the hard-wood timber trees, and have said but little of the numerous firs which are so valuable to us. Their timber is admirably adapted, by its growth, lightness, and strength to supply our navies with masts and spars; while, from its comparatively small cost, and the ease with which it is worked, it is also used very largely for all purposes of building. Indeed it is questionable whether fir is not more generally useful to us than any other species of timber. Du Hamel, in his treatise *Du Transport et de la conservation des Bois,* has drawn a distinction between firs and pines, although it is usual to designate the timber of both as fir timber. Pines, he says, have the leaves thready and slender, growing in clusters from the same leaf-stalk, while firs have straight leaves, each growing separate, but many growing on the same leaf-stalk, like the teeth of a comb. These are the general character­istics between the two sorts of trees which produce fir tim­ber. The pines grow with their trunks much less tapering towards their tops than the firs ; they are therefore, from shape, more adapted for masts than firs. Their wood is also more resinous, and the resin is of a more glutinous nature, and therefore less easily evaporated ; it also, in consequence of this quality, enables the timber to resist better the absorp­tion of water or moisture when exposed to it. The pine is more durable than the fir, and its fracture is, even when partially decayed, much more fibrous, and takes place with more previous warning. The timber of the pine, when healthy, is close-grained, even textured, and of a bright-yel­low colour. The fir is, although frequently little inferior in appearance in other respects, always of a much paler shade of colour.

The most valuable of all the varieties of fir timber is that which is called Riga fir. It is the red-wood pine of the north of Europe, the *Pinus Sylvestris,* which, although spread over a very large portion of the globe, appears to flourish in its greatest perfection in the forests of Lithuania and Poland, where the cold is severe and the soil generous. Riga fir is not only extremely flexible and elastic, but is by far the most durable of all the pine timbers; and as long as it could be procured of sufficient size, it was therefore gene­rally used in the royal navy not only for topmasts, but also

to build the lower or standing masts. At present, from the increased difficulty of procuring large sticks, the use of it is confined to topsail-yards and the smaller description of spars. The American continent also produces this red- pine timber of good quality, although much inferior to that of the north of Europe. It is imported from Canada and from Virginia. The Canadian red pine is of small size, seldom exceeding fourteen hands. The Virginian pine is large, sticks of twenty-four and twenty-five inches in dia­meter not being uncommon. It is a resinous and flexible wood ; but the sticks are more subject than the Canadian red pine to the defect of having large knots in them, which, from not being firmly united to the surrounding timber, that is, not being what is technically called “ well collared,” in­jure its value. The red pine thrives extremely well in Scot­land, where it is called Scotish fir. There are many ex­tensive forests of it in that part of Great Britain, but the timber will not bear comparison with that which is import­ed. Notwithstanding this, Du Hamel makes “ Scotish pine" the generic name of the best variety of the pine timber, that which we designate as “ Riga.” The French dock­yards are supplied with mast-timber from the red pine of the Pyrenees and of the island of Corsica ; but neither of these varieties of this timber is considered at all on an equality with that which is grown in the more northern parts of Europe. Indeed a low temperature of climate appears to be essential to the production of superior fir timber. The firs on the northern sides of hills and mountains, in all tem­perate climates, thrive better than those growing on the southern exposure, and even the timber on the northern side of an exposed fir tree is far superior to that on its south­ern side.

Yellow pine, the *Pinus Strobus,* which is imported from Canada, is the principal timber now available for large masts and yards, and is therefore very generally used both in the royal and the mercantile navies. It has neither the flexibility nor the elasticity of the red pine, nor is it so du­rable, but it is much lighter. Its great recommendations are its large size and its comparatively small cost. Sticks of this timber run from sixteen to twenty-seven or twenty-eight inches in diameter; and for bowsprits they are sometimes received in the royal yards as large as twenty-nine and thirty inches in diameter ; but sticks of these large diameters are becoming very scarce. To Mr Cradock of Portsmouth dock­yard, a member of the late School of Naval Architecture, we are indebted for the following information as to the more extensive application of this species of fir for spars of all sizes in the American navy than in our own. In June of the year 1837, he surveyed the mast and spars of the Ameri­can frigate Independence, then lying at Spithead. “ They were generally as large, and in some instances the spars were larger, than those of the Britannia, a British first rate ; and the whole of them, without any exception, were made of yellow-pine timber. Her topgallant-masts were about twenty feet longer than those of the Britannia, and yet were only of the same diameter, while those of the Britannia arc made of Riga hand-masts. The topmasts were of the same length and diameter as those of the Britannia, which arc made of Virginia red pine ; the topsail-yards were three feet longer, and were yet only one inch more in diameter than those of the Britannia, which of course are made of Riga; and so on with the other spars. This proves, that the yellow-pine timber may be safely used if necessary for all masting purposes, with a very little increase in the di­ameter of the spars made from it, and with thicker battens on the yards.”

The yellow-pine timber grows also in Great Britain, where it was first introduced by an earl of Weymouth, and thence is called the Weymouth pine; but it does not appear to thrive in this climate.

Scotish and Norwegian spruce spars, *Pinus Abies,* are very