

sitions, which are chiefly accumulated along the line of coast, must be to create shoal water along the same line; and it is very possible that the mass of waters flowing forwards with the impulse of the flood, may be forced, by the resistance it thus encounters, to rise higher than would be the case were the bottom more deep. It seems certain that the bottom of all narrow æstuaries into which extensive rivers discharge themselves, have been sensibly raised by these depositions; and in such situations it must follow as a necessary corollary, that the level of high water has been raised also.

The occurrence of submarine forests, i. e. the remains of forests traceable along the line of coast considerably beneath the high water level, affords a phænomenon of great interest, which does not seem readily explicable except on the views just stated. The remains of such a forest were traced by Sir Joseph Banks, (see Philosophical Transactions for 1799), along the Lincolnshire coast; the same thing may be observed beneath the marshes of the Thames from the Isle of Dogs to Purfleet, at several points along the southern coast, in the Bristol channel, at Blue Anchor near Dunster, and at Shurton bars and Stolford, where they have been accurately described by Mr. Horner (Geol. Trans. vol. 3); at Newgill Sands, Pembrokeshire; on the Lancashire coast, &c. &c. It is evident in many of these instances that the trees have not been drifted to their present place, but have grown where they now are found, since not only are the remains of their stems in an upright direction, but the roots may often be traced spreading in an undisturbed position through the substratum.

In many instances we find vallies opening towards the sea which have evidently once been æstuaries, completely filled up by these depositions, and the phænomena they present are often interesting. Usually the bottom is coarse gravel, upon which rests a finer silt; often one or more beds of vegetable matter alternate with the silt; it appears that these have been derived from drift wood, which has floated into the æstuary, become saturated with water, or as it is called water-logged, and perhaps covered by alluvial debris, drifted on its surface by the wintry torrents, and thus sunk. Bones of animals, and sometimes of men, and rude implements of art, have been found among these accumulations, having drifted probably upon the wood. The stream-works, as they are called, of Cornwall, are evidently æstuaries thus filled; in these, rounded fragments of tin ore are sufficiently abundant among the gravel which forms the bottom bed, to render the laying open these deposits a profitable speculation; some interesting sections of