Lastly. The reader must recall to mind what was said in the 11th and 12th chapters, of the glacial drift and its far-transported materials. How wide an extent of the British Isles appears to have been under the sea during some part or other of that epoch! Most of the submerged areas were afterwards converted into dry land, several hundred and in some places more than a thousand feet high. It is an opinion very commonly entertained, that the central axis of the Weald was dry land when the most characteristic northern drift originated; no traces of northern erratics having been met with farther south than Highgate, near London. If such were the case, the Weald was probably dry land at the era when the buried forest of Cromer in Norfolk (see above, pp. 136 and 153) flourished, and when the elephant, rhinoceros, hippopotamus, extinct beaver, and other mammals peopled that country. It may also be presumed that the Weald continued above the sea-level when that forest sank down to receive its covering of boulder-clay, gravel, chalk-rubble, and other deposits, several hundred feet thick. But it by no means follows that the area of the Weald was stationary during all this period. Its surface may have been modified again and again during the Glacial era, though it may never have been submerged beneath the sea.

Mr. Trimmer has represented in a series of four maps his views as to the successive changes which the physical geography of England and parts of Europe may have undergone, after the commencement of the Glacial epoch.* In the last but one of these he places the Weald under water at a date long posterior to the forest of Cromer. In the fourth map he represents the Weald as reconverted into land at a time when England was united to the continent, and when the Thames was a river of greater volume and of more easterly extension than it is now, as proved by his own and Mr. Austen's observations on the ancient alluvium of the Thames with its freshwater fossils at points very near the sea. To discuss the various data on which such conclusions depend, would lead me into too long a digression; I merely allude to them in this place to show that, while the researches of Mr. Prestwich establish the extreme remoteness of the period when the denuding operations began, those of other geologists above cited, to whom Mr. Martin, Professor Morris, and Sir R. Murchison should be added, prove that important superficial changes have occurred at very modern eras.

In Denmark, especially in the Island of Möen, Mr. Puggaard has demonstrated that strata of chalk with flints, nearly as thick as the white chalk of the Isle of Wight and Purbeck, have undergone disturbances and contortions since the northern drift was formed.† The layers of chalk-flint exposed in lofty sea-cliffs are often vertical and curved, and the sands and clays of the overlying drift follow the bendings and foldings of the older beds, and have evidently suffered the same derangement. If, therefore, we find it necessary, in order to explain the position

* Geol. Quart. Journ. vol. ix. pl. 13.

† Puggaard, Möens Geologie, 8vo.: Copenhagen, 1851.