

breach in the chalk, and may be seen hanging on the base of the cliffs on either side: this clay, resting on the inclined substrata, would naturally turn the current in a northern direction.\* Thence the chalky cliffs extend in a magnificent line of mural precipices, known by the name of the Main Bench, for two miles to the west; where, ending in the bold promontory of the Needles, they form the western cape of the island; beneath this cape lies that singular group of insulated pyramidal masses of chalk from whose figure it derives its name. These, having yet resisted the action of the surrounding waves, remain monuments of its ravages, which have destroyed the continuation of the chain of which they once formed a part. An idea may be formed of their size, when it is stated that the hull of the *Pomona*, a 50 gun frigate, (which in 1811, on her return from Persia, struck upon the point of the most western Needle) did not reach one-fourth of their height.

In Alum bay, on the north of the Needle point, the junction of the chalk and the upper strata represented in the second Plate (fig. 6.) accompanying this work is seen.

The chalk strata here, as in Culver cliffs, are vertical near their upper junction, and inclined in an angle of between 50° and 60° near their lower.

### (e) ISLE OF PURBECK.†

In order to continue our examination of the sections presented by the chalk ranges, we must next cross the channel to the eastern extremity of the Isle of Purbeck, where in the prolongation of the same direct line with the central range of the Isle of Wight, and facing the Needle's point, another magnificent and interesting section of the vertical and inclined chalk is exhibited in the cape called Handfast-point.

This promontory forms the division between Studland bay on the north, and Swanwich bay on the south; the former exhibiting the superior, the latter the inferior junction of the chalk. The chalk strata first emerge under a very low and almost inappreciable angle, and thus continue round the extreme point of the cape; near which four or five detached pillars of chalk rise above the water, being evidently portions

\* This point affords a good station whence we may expect to estimate hereafter the progress made by the encroachments of the sea, in wearing away the coast, since a very small advance will cut through the beach into the source of this rivulet, and joining the æstuary, render this peninsula a distinct island: the isthmus is at present protected by a shingle bank.

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