

are so complicated that not only may we sometimes find portions of them which maintain their verticality to a height of 10 or 15 feet, but they have also been folded upon themselves in such a manner that continuous layers might be thrice pierced in one perpendicular boring.

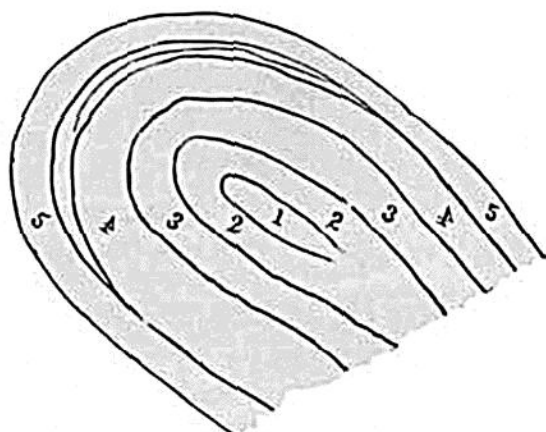
At some points there is an apparent folding of the beds round a central nucleus, as at *a*, fig 120, where the strata seem bent round a small

Fig. 120.



Folding of the strata between East and West Runton.

Fig. 121



Section of concentric beds west of Cromer.

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|-------------------------|---------------------------|
| 1. Blue clay. | 3. Yellow Sand. |
| 2. White sand. | 4. Striped loam and clay. |
| 5. Laminated blue clay. | |

mass of chalk; or, as in fig. 121, where the blue clay, No. 1, is in the centre; and where the other strata, 2, 3, 4, 5, are coiled round it; the entire mass being 20 feet in perpendicular height. This appearance of concentric arrangement around a nucleus is, nevertheless, delusive, being produced by the intersection of beds bent into a convex shape; and that which seems the nucleus being, in fact, the innermost bed of the series, which has become partially visible by the removal of the protuberant portions of the outer layers.

To the north of Cromer are other fine illustrations of contorted drift reposing on a floor of chalk horizontally stratified and having a level surface. These phenomena, in themselves sufficiently difficult of explanation, are rendered still more anomalous by the occasional inclosure in the drift of huge fragments of chalk many yards in diameter. One striking instance occurs west of Sheringham, where an enormous pinnacle of chalk, between 70 and 80 feet in height, is flanked on both sides by vertical layers of loam, clay, and gravel. (Fig. 122.)

This chalky fragment is only one of many detached masses which have been included in the drift, and forced along with it into their present position. The level surface of the chalk *in situ* (*d*) may be traced for miles along the coast, where it has escaped the violent movements to which the incumbent drift has been exposed.*

We are called upon, then, to explain how any force can have been exerted against the upper masses, so as to produce movements in which the subjacent strata have not participated. It may be answered that, it

* For a full account of the drift of East Norfolk, see a paper by the author Phil. Mag. No. 104, May, 1840.