always the same, however much the external form might vary. As every crystal of calcite could be split up into small six-sided bricks, he was led to infer that the converse operation, by which the crystal would be built up again from these same bricks, was theoretically possible. Haüy then remarked that although the property of cleavage required these bricks to be arranged in layers, it did not require the layers to be all of the same size; that, in fact, without interfering with the cleavage, one, two, or more rows of bricks might be omitted from the outer sides of each layer. The faces formed by the edges of these layers would be the secondary faces of Romé de l'Isle, and would be inclined to the faces of the primitive form at angles which would depend on the number of omitted rows of bricks. By actual measurement Haüy was able to show that the angles of the crystals were such as his theory would require.

The Director then briefly explained that Brewster, from the action of crystals upon polarised light, and Weiss and Mohs, from purely crystallographic considerations, were led to group Haüy's primitive forms into what are now called the six crystalline systems, all differing in the character of their physical and geometrical symmetry.

The Members then adjourned to the gallery to study the collection in detail.

Instruments actually in use for measuring the angles of crystals were exhibited, and a polariscope and sections of minerals to illustrate Brewster's discovery were placed at the disposal of the members.

EXCURSION TO HYTHE, THE N.E. CORNER OF ROMNEY MARSH, SANDGATE AND FOLKESTONE.

MARCH 26TH AND 27TH, 1883.

Directors :—H. B. MACKESON, F.G.S., and W. TOPLEY, F.G.S.,
Geological Survey of England.

(*Report by W. TOPLEY.*)

MONDAY.—The party assembled at Westernhanger Station and walked from thence southward to Lynne. This stands on the brow of an old cliff overlooking Romney Marsh. The summit is capped by Hythe Beds: the slopes are formed of Atherfield Clay and

Weald Clay. Landslips are frequent along the face of this cliff, and to these the destruction of the old Roman Castle has been attributed.

From Lymne the old shingle "fulls" at the north-east corner of Romney Marsh can well be seen. As each "full" marks the high-water line at the time of its formation, the history of a shingle-beach can sometimes be easily read. The oldest fulls here are those furthest west; these run nearly at right angles to the existing coast line, pointing towards Lymne. They must once have stretched well out to sea, and probably they then curved round to the south and south-west, protecting this part of the Marsh from the sea. The sea has since worn away the S.E. part of this old shingle bank, and the Marsh would be under water at every high tide but for Dymchurch Wall. The ancient *Portus Lemanis* is by some antiquaries placed at Lymne, and here some also place the outlet of the Rother (Limen). But there is no evidence of any old river along the northern side of the Marsh; the fulls previously mentioned mark an inlet of the sea, but not necessarily a river-mouth. The Limen probably ran out towards Romney.

A discussion upon these matters took place whilst viewing the Marsh, and reference was made to various papers, including one recently read by Mr. G. Dowker to the East Kent Nat. Hist. Soc.

Passing through Pedling Green, and over the hill to the N.E. of this, on which is a fine British Camp, the party reached the cuttings of the new branch railway to Hythe. The dark sandy clays of the Sandgate Beds are well seen, and also the sands of the Folkestone Beds. The exact position of some buff-coloured sands which come between them was not evident. Probably they mostly belong to the Folkestone Beds, but the beds differ somewhat in character from those of the coast, which are represented on the accompanying section. After inspecting Sallwood Castle the walk was continued to the quarries N.E. of Hythe, where numerous fossils from the Kentish Rag were obtained. The Atherfield Clay is seen in place at the bottom of the quarries, and on the slope of the hill a slipped junction of the Wealden and Atherfield could be observed—a cutting to show this having been prepared by Mr. Mackeson.

FIG. 1.

A visit to Hythe Church brought the first day's excursion to an end. In the crypt of the church there is a large collection of bones and skulls, the history of which is unknown. The Vicar (Rev. P. G. Hall, M.A.) explained these, pointing out the peculiarities of some typical examples of skulls.

TUESDAY.—This day was devoted to an examination of the cliffs between Hythe and East Wear Bay. A detailed section, compiled chiefly from the descriptions of Mr. F. G. H. Price, is given in Fig. 1, and therefore need not be repeated here. The various divisions were pointed out by Mr. John Griffith, of Folkestone.

In front of Shorn Cliff the junction of the Atherfield and Wealden can be seen at the lowest tides. The general dip of the strata here is a little to the E. of north; as the coast line runs a little N. of east higher beds successively come to sea-level as we pass eastwards. In this way all the members of the Lower Greensand Series are crossed. West of Folkestone the cliff is much slipped, and natural sections in place are not numerous.

After an hour's break for luncheon at Folkestone, during which time members inspected the town, the walk was resumed eastward to Copt Point. The Junction Bed of the Gault and Folkestone Beds is here well seen, with its phosphate-nodules, and peculiar ammonites. The various divisions of the Upper Gault were also examined. A stormy afternoon somewhat interfered with the remainder of the programme; but a few walked along the undercliff, and, under the direction of Prof. W. Boyd Dawkins, examined the chalk brought out of the exploring drift of the Channel Tunnel.

REFERENCES.

- Geological Survey Maps, sheet 3, sheet 4. 5s.
 W. H. FITTON, "On the Strata below the Chalk." *Trans. Geol. Soc., Ser. 2*, Vol. iv., pp. 105-131; 1836.
 F. DREW, "The Geology of the Country between Folkestone and Rye" (*Mem. Geol. Sur.*); 1864. Price 1s.
 C. E. DE RANCE, "On the Albian, or Gault, of Folkestone." *Geol. Mag., Vol. v.*, pp. 141-148; 1868.
 F. G. H. PRICE, "On the Gault of Folkestone." *Quart. Journ. Geol. Soc., Vol. xxx.*, pp. 342-368; 1874.

F. G. H. PRICE, "On the Lower Greensand and Gault of Folkestone."
Proc. Geol. Assoc., Vol. iv. (No. 2), pp. 135-150; 1874.

F. G. H. PRICE, "The Gault;" 1879. Price 3s. 6d.

W. TOPLEY, "The Geology of the Weald" (Mem. Geol. Survey); 1875.

Members were recommended to provide themselves with the new one-inch Ordnance Map of this locality—New Series, Sheet 305 (price 1s.). Sketch Maps, showing the Geology, were provided for those present. The Vertical Section is prepared from measurements given by Mr. Price in the papers quoted above; the numbers on the right hand are those employed by him.